JUN 9

the OIL AND GAS JOURNAL

41

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1938

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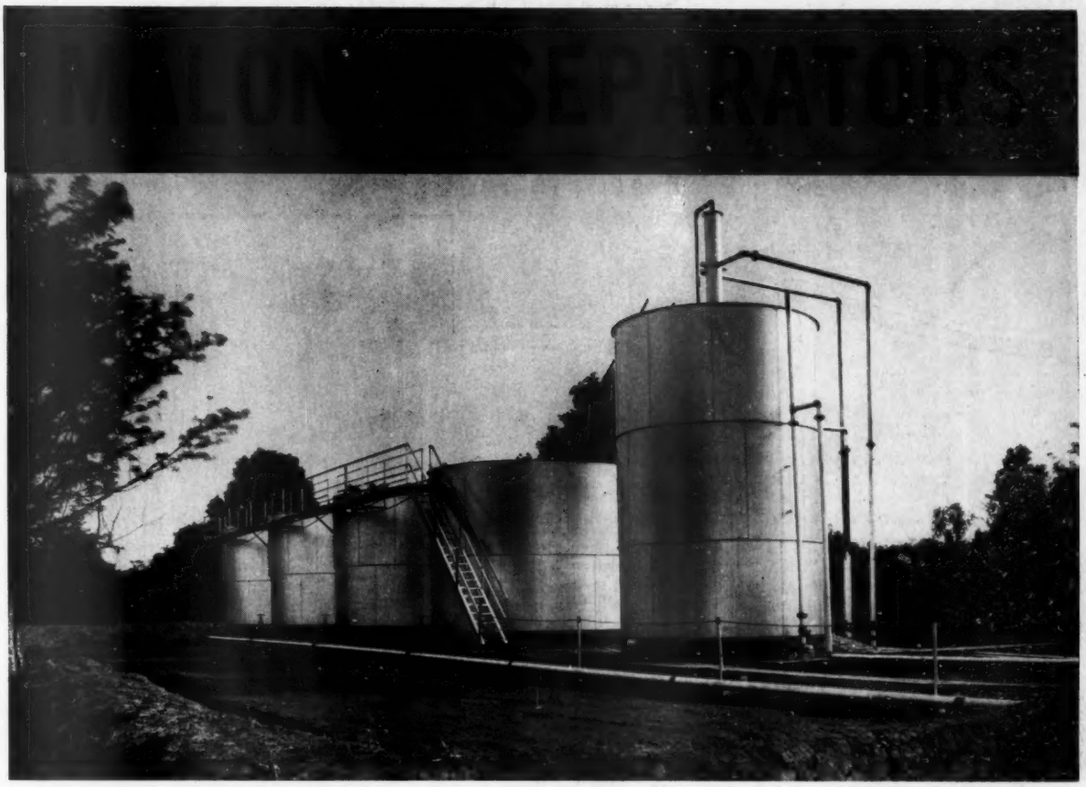
MALONE SEPARATORS



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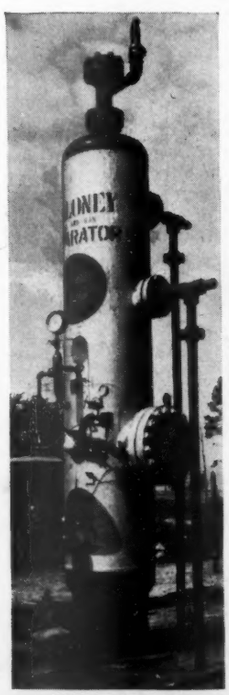

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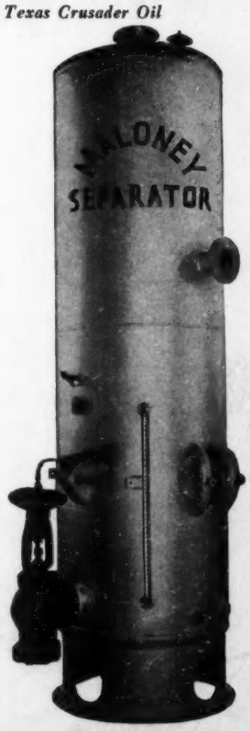

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We Especially Recommend PRE-FORMED for 3 OIL FIELD SERVICES

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"UNION-formed" Rope offers many secondary advantages. It resists kinking; reels evenly; does not unravel when cut.

The photo shows Oklahoma's deepest well (11,415 ft.), in Grady County, drilled for Gulf Oil Corp., by Parker Drilling Company. Left to right the men are: Tom Tucker, engineer; G. C. Prichard; N. H. Nall, driller; E. MacDaniels, tool pusher; N. W. Wall; Harold Hickman; B. J. Routh, engineer with Gulf; L. P. Nixon, Union Wire Rope Corp. This well was drilled exclusively with UNION Lines, which handled a drill pipe weighing 85 tons, dead weight.

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The Oil and Gas Journal

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Table of Contents

Vol. 37. No. 4 — June 9, 1938

News Developments

Summary 19

Fuel Oil Accounts for Most of Gain in Stocks ..... *C. O. Willson* 20

Sparks From the News 22

Illinois-Indiana Oil Men Hold Biggest Meeting ..... *James McIntyre* 23

May End Madison Case by Agreement ..... *R. B. Pyre* 25

Action in Oil Investigation by Fall Expected ..... *Henry D. Ralph* 26

Kerosene, Losing Former Place, Finds New Ones ..... *H. Stanley Norman* 27

Editorial: Vulnerable Point 29

Shreveport Geological Society Adopts New Nomenclature ..... *George Weber* 30

Proration Invoked Again in Panhandle Sour Gas Area ..... *Mitchell Tucker* 31

News From State Capitals 33

Refinery Expansion 34

Natural Gasoline 34

Pipe Line Activity 35

Natural Gas News 35

Some Consequences of Close Spacing in Kansas ..... *Eugene A. Stephenson* 36

Obituaries 40

Engineering—Operating

Stage Separation and Recycling of Combination Wells ..... *Mitchell Tucker* 42

Progress in Metals ..... *W. L. Nelson* 46

Operating Ideas 49

High-Octane Gasoline Obtained by Catalytic Dehydrogenation ..... *V. I. Karzhev, M. G. Sever'yanova and A. N. Siova* 50

Experiments on Fluid Capacity and Plugging of Oil-Well Screens ..... *R. L. Chenault* 54

Problems From Readers ..... *L. G. E. Bignell* 63

Questions on Technology ..... *C. K. Francis, Ph.D.* 64

Field Operations

Field Operations Summarized 67

Southwest Texas ..... *F. L. Singleton* 68

Central West 70

Michigan ..... *Otto C. Pressprich* 72

Kansas ..... *Dal Dalrymple* 73

Gulf Coast ..... *Neil Williams* 74

Oklahoma ..... *Dal Dalrymple* 76

North and East Texas ..... *Mitchell Tucker* 78

Louisiana and Arkansas ..... *George Weber* 79

West and Central Texas and Panhandle ..... *Mitchell Tucker* 80

California ..... *L. P. Stockman* 83

Rocky Mountain Area ..... *T. R. Ingram* 85

Canada ..... *Victor Lauriston* 89

Eastern Fields ..... *Staff Correspondent* 90

Wildcat Operations 91

Markets and Prices

Group 3 Market ..... *D. H. Stormont* 102

A.P.I. Refinery Report 103

New York Market ..... *H. Stanley Norman* 103

Tank-Wagon Market 104

Refinery Prices 105

Crude Prices 106-111

Additional Features

Record of Oil Securities 99

Personal Paragraphs 100

Equipment News 107

Classified Advertising 110

Oil Man's Calendar 111

Advertisers' Index 112

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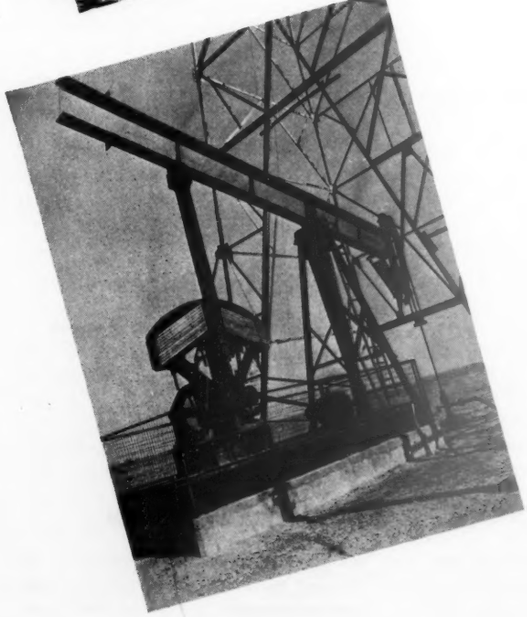

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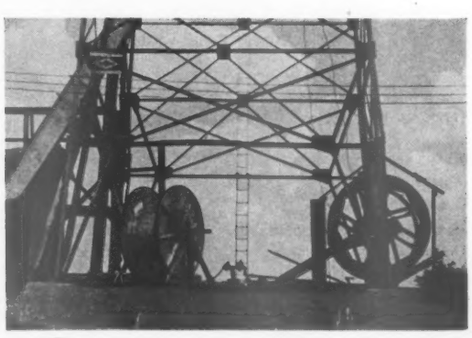
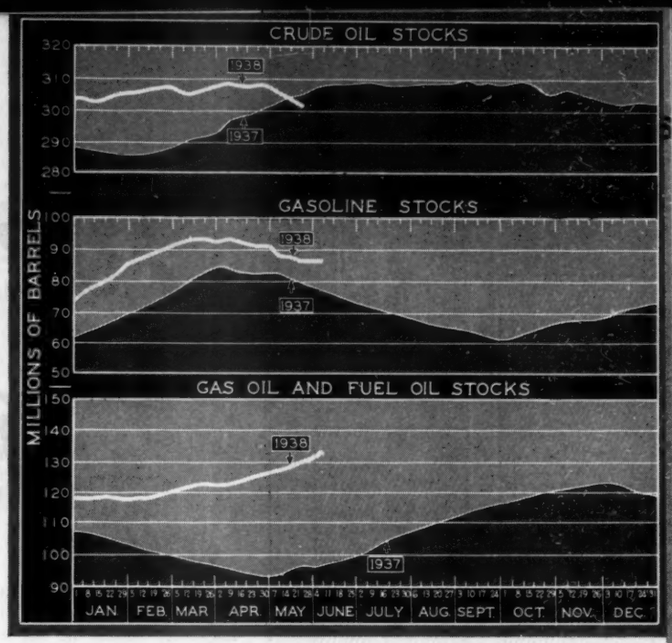


PETROLEUM ELECTRIC POWER CLUB

Trends

Reduced Output Brings a Better Tone in Crude and Refinery Markets



THE large reductions which have been made effective in crude oil production over the past six weeks are resulting in a better feeling in regard to refinery as well as crude oil markets according to reports covering the entire country. The justification for this curtailment in crude oil output lies in the liquidation of excessive inventories and the correlation of crude production and refinery operations to the point where prices for the finished products will be in line with plant costs.

CRUDE PRODUCTION *3,106,875 barrels daily average—down 2,412 barrels.*

CRUDE STOCKS *302,597,000 barrels as of May 21—down 1,601,000 barrels.*

GASOLINE STOCKS *87,767,000 barrels as of June 4—down 197,000 barrels.*

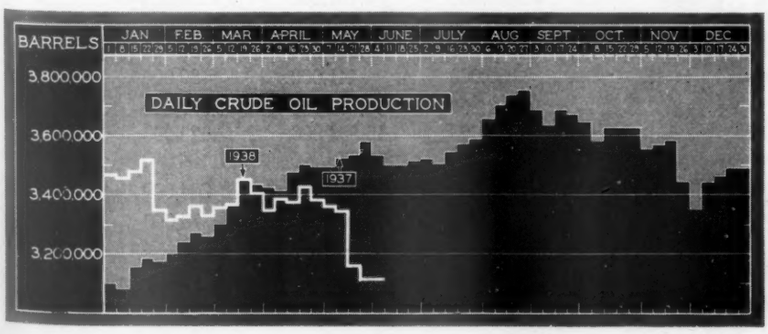
REFINERY RUNS *3,105,000 barrels daily week ending June 4—down 45,000.*

GAS AND FUEL OIL STOCKS *134,632,000 barrels on June 4—up 317,000 barrels.*

There was evidence that this objective was being accomplished although it is too early to predict that there is to be quick closing of the gap between crude oil and refinery prices. In the Mid-Continent, tankcar prices on all grades of gasoline were increased one-eighth cent, the first advance since April 1. It is hoped that other advances will materialize before the end of the month. It is pointed out in this connection that gasoline prices quoted on a basis of Oklahoma (Group 3) are one or more cents per gallon under the prevailing levels of a year ago. This means that gasoline plant revenue is from 20 to 25 cents a barrel under last year. To this disparity must be added the reductions in plant revenue due to the lower prices being received for fuel oil and some of the other products.

Outside the Mid-Continent, prices on several refinery products are firmer. The situation is particularly encouraging on the Gulf Coast, which is the key market for a large domestic and export business. A few weeks ago the Gulf market appeared to have surpluses of practically all products. Reduced refinery output, plus larger shipments including new spot business for gasoline and fuel oils, has brought predictions that general price levels will improve in the immediate future.

There has been some buying by large companies at the Gulf Coast for both export and coastwise movement. Many observers feel that more of this buying is assured provided crude oil production is maintained around present levels. It is felt that the larger companies forced to choose between the maintenance of refinery operations at high levels by drawing on crude stocks on one hand and lower runs supplemented by outside purchases on the other will prefer the latter. It would not require a large volume of this buying at Gulf and Mid-Continent points to bring about a substantial improvement in refinery markets.



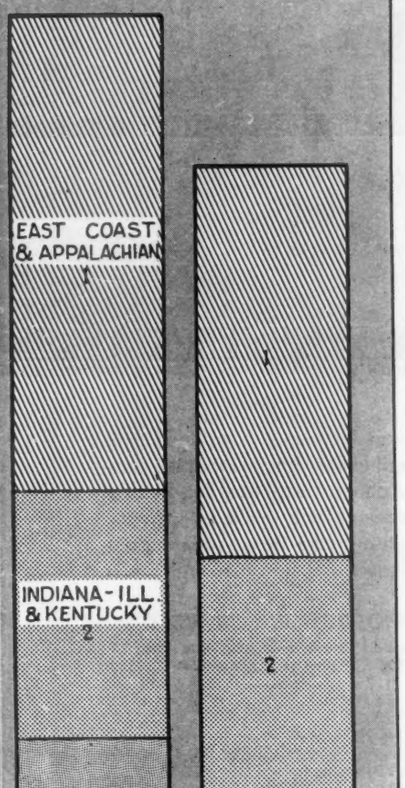
DAILY AVERAGE PRODUCTION FOR WEEK

	June 4 1938	Bur. Mines June est.	June state allowable	May 28 1938
Oklahoma City	94,775	.....	.....	92,050
Fitts	39,800	.....	.....	42,225
Remainder of state	305,900	.....	.....	305,325
Total Oklahoma	440,475	508,300	405,000	439,600
East Texas	363,248	.....	.....	362,869
West Texas	178,852	.....	.....	177,227
North Central Texas	99,953	.....	.....	101,936
Texas Panhandle	60,047	.....	.....	70,390
East Central Texas	95,250	.....	.....	96,310
Gulf Coast Texas	300,754	.....	.....	295,497
Southwest Texas	91,598	.....	.....	91,229
Total Texas	1,189,702	1,329,300	1,127,661	1,195,458
North Louisiana	76,245	.....	.....	78,460
Gulf Coast Louisiana	181,397	.....	.....	177,598
Total Louisiana	257,642	250,000	250,475	256,058
California	675,250	650,000	620,000	679,450
Kansas	138,225	172,300	160,000	143,550
Arkansas	43,315	48,300	.....	41,520
Eastern fields	141,700	145,400	.....	142,900
Michigan	54,736	54,000	.....	53,241
New Mexico	90,950	108,300	91,000	88,560
Rocky Mountain area	74,880	67,400	.....	68,950
Total United States	3,106,875	3,333,300	.....	3,109,287

Decrease of 2 412 bbls. daily.

The small decline in crude oil production last week indicates output will level off during June. Additional reductions in production are to be made effective in Oklahoma where the state allowable is 405,000 barrels daily. California also probably will reduce its output under 650,000 barrels daily. These decreases may be offset by increases in Texas and Kansas next week.

Among the state proration bodies and representative producers the feeling prevails that no further cuts in crude production should be required. They point to the fact that last week's production was 226,000 barrels daily under the Bureau of Mines estimated demand and 437,000 barrels daily under the output of the corresponding week last year. They also present statistical analyses which show that these reductions if carried through to the production of finished products would quickly absorb surplus gasoline stocks.



Fuel Oils Account Recorded in In

By C. O. WILLSON

The addition of more than 6,000,000 bbls. of fuel oil and gas oil to stocks at refineries and major terminals in the four weeks ending May 28 serves further to emphasize the fact that plant owners so far have failed to make the adjustments necessary in their operations to balance supply with a reduced demand for these products.

While the industry generally has centered its attention on curtailment programs in the production of crude oil and the reduction of gasoline stocks, inventories of the heavier refinery products extending from light distillates to the residual fuel oils have accumulated at a more rapid rate than crude oil and gasoline combined. The market significance of this development has been apparent for several months with fuel prices lower in all refining areas.

Market students familiar with the causes and effects of this situation are in agreement that a continuation of this trend represents just as serious a threat to the future stability of prices of the entire industry as the production of crude oil and gasoline in excess of needs. Due to the large yields obtained in most refinery operations, few operators are in position to ignore recessions in the prices obtained for these heavier oils.

Comparative Positions

The comparative positions of the three principal products found in the storage tanks of this country are shown in the accompanying tables and charts. Gasoline stocks on May 28 were 8,466,000 bbls., or 10.6 per cent greater than on the corresponding date of last year, while stocks of fuel oil and gas oil increased 38,092,000 bbls., or nearly 40 per cent during the year. Stocks of crude oil, after increasing steadily the latter part of last year and the fore part of this year, have registered sharp declines, and on May 28 were 2,374,000 bbls. under the figure for May 22, 1937. The latest available reports show that stocks of kerosene, natural gasoline, lubricating oil, and some of the minor products are higher than last year. Taking into consideration the decrease in crude oil stocks, these data indicate that stocks of all oils (crude oil and refined products) are now about 47,500,000 bbls. higher than they were a year ago.

Motor Fuels

While the recent reductions in motor fuel stocks have not been as large as hoped for, a study of the current reports in their relation to those of previous years tends to detract somewhat from the dominant position usually accorded the product in bringing about better market conditions in the entire industry. Those who prefer looking at stocks in terms of days' supply rather than barrels are pointing to the fact that today's motor fuel stocks are little greater than they were a year ago and less than they were on the same date in several years of the past.

In relation to the average daily demand for gasoline last year the gasoline stocks of May 29, 1937, represented 52 days' supply. Both domestic and export shipments of motor fuel this year are running ahead of 1937. Complete data for the first quarter showed a gain of 4 per cent over the same period last year. Assuming a continuance of this gain over the rest of the year, the stocks on May 28 while 10.6 per cent greater in volume, represent only three days' more supply.

As shown in the table the gain in most of the refining areas is about 20 per cent, with an increase of only 5.4 per cent in California and with Mid-Continent inventories less than they were a year ago. The decrease in the Mid-Continent is entirely due to Oklahoma and Kansas refiners, whose stocks of gasoline

CHANGES IN REFINERY

	GASOLINE STOCKS			
	May 28, 1938	May 29, 1937	1938 increase	
EASTERN AREAS	26,589,000	21,833,000	4,756,000	21.8%
East Coast	23,132,000	18,976,000	4,156,000	21.9%
Appalachian	3,457,000	2,857,000	600,000	21.0%
INDIANA, ILLINOIS, KENTUCKY	14,087,000	13,842,000	245,000	1.7%
MID-CONTINENT	10,811,000	11,191,000	†380,000	†3.5%
Oklahoma, Kansas	7,725,000	8,783,000	†1,058,000	†12.0%
Inland Texas	2,556,000	1,967,000	589,000	29.9%
North Louisiana, Arkansas	530,000	441,000	89,000	20.2%
GULF COAST	14,536,000	11,759,000	2,777,000	23.6%
Texas Gulf	12,007,000	10,384,000	1,623,000	15.6%
Louisiana Gulf	2,529,000	1,375,000	1,154,000	84.0%
ROCKY MOUNTAINS	2,232,000	2,028,000	204,000	10.0%
CALIFORNIA	15,069,000	14,293,000	776,000	5.4%
***TOTAL**	87,964,000	79,498,000	8,466,000	10.6%

*Includes estimated unreported stocks. †Decrease. All data based on weekly A.P.I. reports.

for Most of Gain dustry's Stocks

for several months have been under those of the same period of 1937. The Mid-Continent situation reflects an unsatisfactory refinery market, which has caused several plants to be shut down and removed the usual incentive for winter and spring storage programs at many other plants.

The objective in regard to gasoline storage suggested by market students is to reduce stocks over the next four months so they will total approximately 63,000,000 bbls. by October 1. To carry out such a program it will be necessary to reduce stocks an average of 1,500,000 bbls. weekly over the next 16 weeks. Some observers do not believe it possible to bring about such a large reduction in that period. They favor smaller reductions and winter to the end that the rapid accumulation of during the summer months, with curtailment next fall gasoline in storage, such as took place last year, will not be duplicated.

CRUDE OIL STOCKS BY AREAS

	May 21, 1938	May 22, 1937	1938 decrease
Pennsylvania Grade	4,686,000	3,990,000	*696,000
Other Appalachian	1,036,000	794,000	*242,000
Lima-N.E. Indiana-Michigan	1,183,000	1,436,000	253,000
Illinois-S.W. Indiana	10,039,000	9,638,000	391,000
N. Louisiana-Ark.	8,684,000	9,309,000	1,625,000
West Texas and S.E. New Mexico	29,489,000	30,832,000	1,343,000
East Texas	25,536,000	23,118,000	*2,418,000
Other Mid-Continent	125,833,000	124,915,000	*918,000
Gulf Coast	23,067,000	26,220,000	3,153,000
Rocky Mountains	23,193,000	25,484,000	2,291,000
California	26,598,000	29,119,000	2,521,000
Foreign	3,303,000	2,156,000	*1,147,000
Total reported weekly	282,647,000	287,021,000	4,374,000
Estimate of unreported stocks	19,950,000	17,950,000	*2,000,000
Total stocks	302,597,000	304,971,000	2,374,000

All data based on weekly Bureau of Mines reports.
*Increase.

Crude Oil

The crude stock situation represents something of a paradox. A year ago, with the actual demand for petroleum about the same as it is now, some of the large crude buyers were anxious to purchase crude in excess of needs in order to fill empty tanks. Due to that attitude nominations for crude were in excess of actual consumption, and crude was going to storage at the rate of 100,000 bbls. or more east of California.

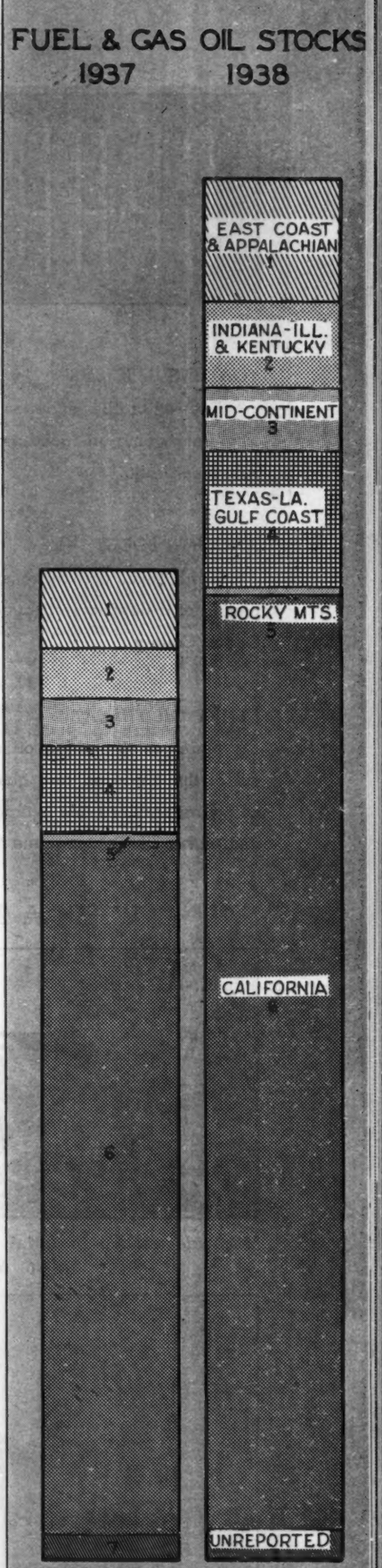
Now some of these same buyers are equally anxious to dispose of the crude accumulated at that time and later in the year. Taking advantage of the severe curtailment program in effect over most of the oil country, they have been able in the past month to reduce stocks at the rate of more than 200,000 bbls. daily. In regard to crude stocks, many analysts feel that present inventories are not far from minimum working requirements with minor fluctuations dependent on general conditions in the industry. Totals are 125,000,000 bbls. under the peak of the late twenties, and based on days' supply present stocks are about half what they were at that time.

Gas Oil and Fuel Oil

The 134,315,000 bbls. of fuel oil and gas oil reported on May 28 compares with totals around 100,000,000 bbls. on the same dates in 1934, 1935, 1936, and 1937. The increase is largely due to the decreased demand for the residual fuel oils. The Bureau of Mines data for the first quarter of this year showed a slight gain in the distillate and gas oil demand and a 13 per cent decrease for the residual fuels. It is believed that the lighter overhead fuels classed as distillates will continue in a strong demand position over balance of the year.

INVENTORIES 1937-1938

	GAS OIL AND FUEL OIL STOCKS			
	May 28, 1938	May 29, 1937	1938 increase	
EASTERN AREAS	12,083,000	7,284,000	4,799,000	65.8%
East Coast	10,687,000	6,648,000	4,039,000	60.7%
Appalachian	1,396,000	636,000	760,000	119.0%
INDIANA, ILLINOIS, KENTUCKY	8,155,000	5,009,000	3,146,000	62.8%
MID-CONTINENT	6,461,000	4,905,000	1,556,000	31.7%
Oklahoma, Kansas	3,987,000	3,039,000	948,000	31.2%
Inland Texas	1,702,000	1,504,000	198,000	13.1%
North Louisiana, Arkansas	772,000	362,000	410,000	113.0%
GULF COAST	13,105,000	8,657,000	4,448,000	51.3%
Texas Gulf	9,739,000	6,662,000	3,077,000	46.2%
Louisiana Gulf	3,366,000	1,995,000	1,371,000	68.7%
ROCKY MOUNTAINS	849,000	748,000	101,000	13.5%
CALIFORNIA	90,932,000	67,363,000	23,569,000	34.9%
*TOTAL	134,315,000	96,223,000	38,092,000	39.5%



SPARKS FROM THE NEWS

TONE INSUFFICIENT

The roll of idle refineries is convincing testimony that you can't keep going on "good market tone" alone. There's got to be a little profit.

ANOTHER BOOST

North Texas activity received another boost with the completion of a flowing well opening a new pool in northeastern Cooke County.

HEAVY OIL THREAT

More gas oil and fuel oil is going to storage than is coming out of the crude oil and gasoline tanks. The bulk of these heavy refinery oils due to cracking can be made into gasoline, and will be if they continue to be overproduced.

WHEN A TORNADO STRIKES

Mile-wide tornado in K.M.A. field June 3 leveled everything in front of it. No fatalities resulted

EXTENDING THE OLD

No new pools were opened in Kansas last week, but drillers succeeded in extending six old ones.

PROOF

Proration is getting somewhere when one state official criticizes another for alleged failure to enforce allowables in May. That happened in Oklahoma this week.

"IN" WEEK

The new Ramsey pool in Oklahoma has been an "in and outer," but last week it was "in" with three wells having a total potential of 30,000 barrels daily.

KEROSENE LIGHT

New uses partly explain the record consumption of kerosene this year. However, there are still hundreds of thousands of homes in this and other countries dependent on the kerosene lamp for light.

CURE

Again a Sunday drive on the main highways is recommended for the pessimist who "knows" that the recession has caused motorists to leave their cars in garages.

ILLINOIS ACTIVITY

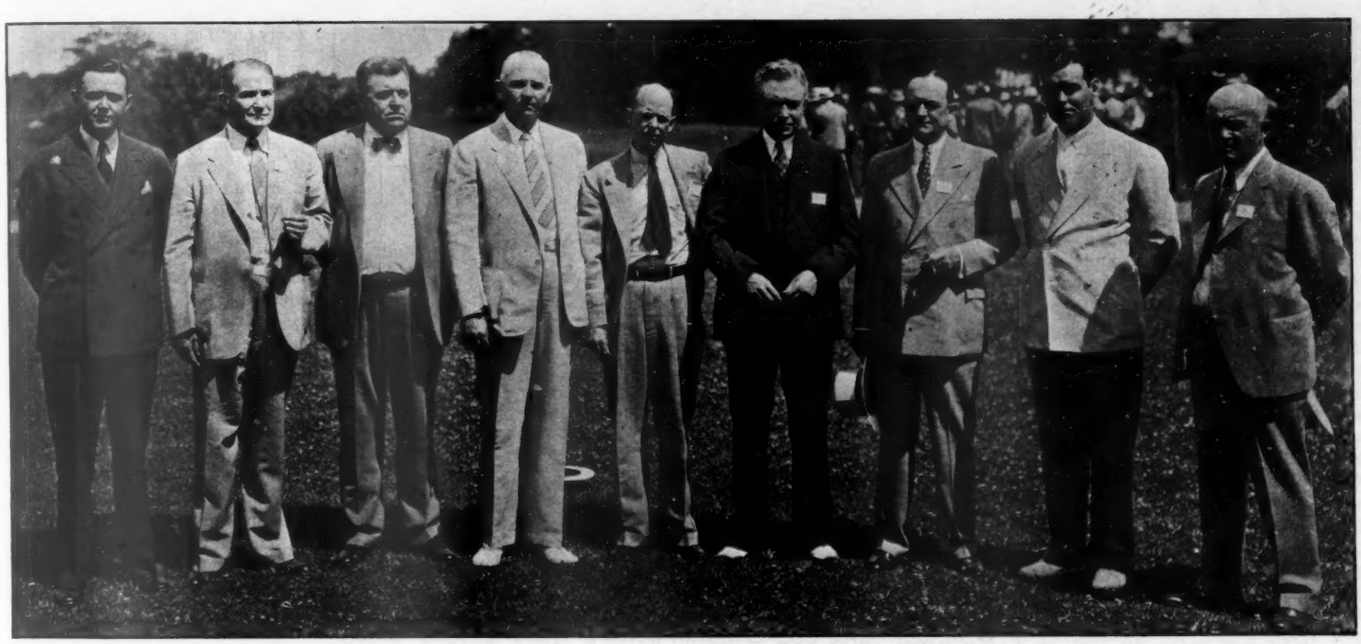
The Illinois Basin activity of the past year explains the record attendance at the annual meeting of the Illinois-Indiana Petroleum Association in Robinson Saturday.

ACCELERATION NEEDED

The gasoline advance in the Mid-Continent is under way, but more acceleration is needed if refiners are to be in the black again by midsummer.

BARGE RECORD

They are getting ready to test the world's second deepest well, bottomed at 13,333 feet in Coastal Louisiana. An amazing feature of this well is that it was drilled from a drilling-barge.



Officers and directors, Illinois-Indiana Petroleum Association, in attendance at annual conference: R. W. McIlvaine, Jr., Pure Oil Co., Olney, Ill., secretary; William Bell, Bell Bros., Robinson, Ill., president; Alex U. McCandless, Mahutska Oil Co., Robinson; J. T. Crumbie, Magnolia Petroleum Co., Mattoon, first vice president; T. B. Steele, Kewanee Oil Co., Robinson., treasurer; C. C. Carroll, Ohio Oil Co., Marshall, Ill.; William R. Boyd, executive vice president A.P.I., New York (guest of the association); Lee Mulvihill, Robinson, executive secretary; Frank B. Barnes, Craig & Lowrie, Robinson

Illinois - Indiana Oil Men Hold Biggest Meeting

By JAMES McINTYRE

ROBINSON, Ill., June 6.—The largest meeting of the Illinois-Indiana Petroleum Association was the sixth annual conference held in the Crawford County Country Club Saturday, June 4. There were 350 registrations of oil and gas men from the two states, and a sprinkling of Kentucky, Oklahoma and Ohio oil men swelled the crowd to more than 375. William R. Boyd, executive vice president of the American Petroleum Institute, and O. D. Donnell, of Findlay, Ohio, president of the Ohio Oil Co., were special guests of the association. The Independent Petroleum Association of America was represented by C. E. Buchner, of Tulsa, its secretary.

C. C. Carroll, manager of the Illinois division of the Ohio Oil Co., Marshall, Ill., presided over the morning session, and R. W. McIlvain, Jr., manager of the Illinois producing division of the Pure Oil Co., Olney, Ill., was chairman of the afternoon session. The toastmaster at the banquet, held in the evening, was Robert M. Payne, division land man for the Carter Oil Co., Mattoon, Ill.

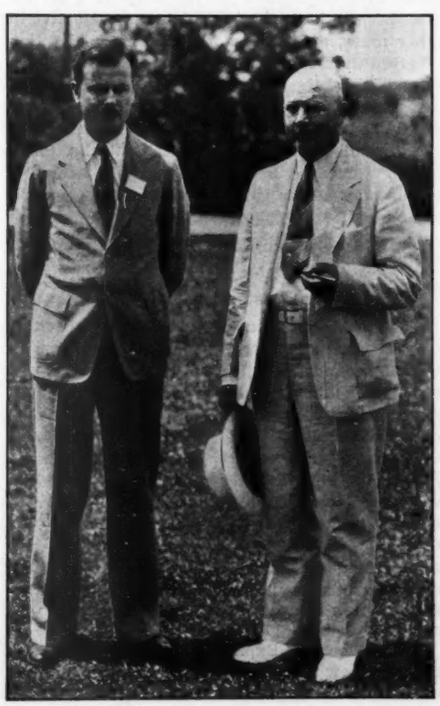
In his address of welcome President William H. Bell, who is also a member of the Interstate Oil Compact Commission, representing Illinois, emphasized the need of petroleum conservation, and called attention to the work done by the compact commission. The oil industry has cooperated with the recommendations of the commission. This was recently illustrated following the compact meeting in Wichita, Kans. Mr. Bell explained briefly the different laws governing oil conservation and the administration of proration in the various states that have conservation laws. He said that in the absence of such laws buyers of oil do the prorating and have no authority to discriminate in favor of small wells. In that case, generally, proration is applied to all wells in the same percentage. Mr. Bell gave it as his opinion that pipe line companies and refineries much prefer to make investments where they know the production will be handled in a conservative way, and where they can depend on a supply of crude over a long period because of wise conservation laws.

State Geologist Speaker

Prof. Ralph E. Esarey, state geologist of Indiana, discussed "The Mount Carmel Fault of Indiana," an area 52 miles in length extending from northeastern Monroe County, near the Monroe-Morgan line, southward and slightly eastward through Monroe and Lawrence counties and into Jackson County, east of Leesville, and thence southward into Washington County about 6 miles. In conclusion he said that every well drilled to the Trenton formation located on the Dennison anticline (the major structural fold paralleling the main fault) has obtained a little production in the Trenton. Failure to find commercial production has been ascribed to lack of porosity and permeability rather than structure. If this condition is kept in mind, he said, the local domes upon the principal fold offer favorable structural conditions for testing the St. Peter sandstone occurring some 700 to 800 feet below the top of the Trenton. At that depth the fault is probably sealed or "tight," and should not permit the escape of oil or gas from the St. Peter horizon, if that horizon serves as a collecting reservoir.

Gail F. Moulton, vice president of Ralph E. Davies, Inc., engineers, New York, read a paper on

Dr. Alfred H. Bell, head of the oil and gas division of Illinois State Geological Survey, and Dr. M. M. Leighton, chief of the Illinois State Geological Survey, Urbana



"Significance of New Discoveries in Illinois," in which he touched on the geological features of the southern Illinois Basin and reviewed the history of oil production in the state under old and new conditions.

The methods of 30 years ago gave satisfactory results in the large and prolific eastern Illinois field, the speaker said, but the new methods introduced in the basin are essential for the profitable discovery and exploitation of the remaining fields of small average size. As exploration continues, modifications of seismic, drilling, and well-completion technique may be expected to result in even more satisfactory operations. Mr. Moulton said the real significance of the recent developments in the Illinois Basin area is that profitable development of the type of production to be found there has been made possible by modern methods. "Important though the new reserves are, the methods used in their discovery are more important, for we may confidently anticipate the future discovery in a similar manner of a large number of similar pools," the speaker concluded.

Carter Oil Co. representatives at Illinois-Indiana Petroleum Association meeting: Rex L. Dawson, Mattoon, Ill., division superintendent and a director of the association; Charles D. Watson, Tulsa, executive assistant; L. F. McCollum, Tulsa, vice president; Ralph E. Damp, Mattoon, production superintendent Illinois division; Robert M. Payne, Mattoon, division land man; Walter Davison, Mattoon, counsel

Dr. Alfred H. Bell, head of the oil and gas division of the Illinois State Geological Survey, spoke on "Possible Producing Strata Below the McClosky." Doctor Bell opened with the statement that nearly all the oil and gas so far produced in Illinois has come from strata in the uppermost third of the geologic column of sedimentary rocks present in the area. The lowest strata productive in Illinois lie near the top of the lower Mississippian series and in view of the fact that important quantities of oil are obtained from the pre-Mississippian strata in other states—for example, the Devonian system in Michigan and the Ordovician system in the Mid-Continent area—the question of oil possibilities of these systems in the Illinois Basin region is of interest. Doctor Bell gave a comprehensive description of the deep-lying formations present in the basin, which are productive in other areas, and advised that first consideration be given the Devonian limestone, second the Trenton and third the St. Peter sandstone. Before they are tested in the deep basin area, he said, they should be tested in the marginal areas, where they lie at shallower depths such as Centralia, Sandoval, Patoka, and Beecher City. If production or encouraging oil or gas shows are found in these structures, deep exploration should be carried on progressively into the central basin area, Doctor Bell concluded.

Survey Interested in Developments

Dr. M. M. Leighton, chief of the Illinois State Geological Survey, was the opening speaker at the afternoon session. He told of the deep interest the survey takes in the developments of the producing industry in the state, and invited oil men to take advantage of the facts the survey has stored up in its years of research, but which are changing almost daily in the swiftly moving modern system of scientific knowledge and practice. In the past 18 months Illinois has added from 60,000,000 to 70,000,000 bbls. of oil to its reserves and Doctor Leighton expressed confidence that these figures quoted would be materially increased before the new campaign of operations comes to its close.

"The Electrical Exploration of Drill Holes" was a subject new to many of the veteran oil men present, and it was ably handled by Dr. E. F. Stratton, Illinois representative of Schlumbereger Well Surveying Corp. at Mattoon.

"The Application of Core Analysis to Well Completions" was presented by John H. Campbell, of Centralia, Ill., representative of Core Laboratories, Inc. Reviewing the evolution of core analyses from their beginning to the present, he said analysts were now able to answer the operator's questions when coring in new areas for proper spacing, shotpoints, packer-setting, rate of water input, optimum pressure, feet of floodable sand, etc.

Calls for Worry and Skill

C. F. Hobbs, production superintendent of Big Four Oil & Gas Co., Bridgeport, Ill., and a veteran operator of old production, spoke extemporaneously on "The Economic Aspect of the Stripper Well Producer." He emphasized the importance of oil producing wells and offered suggestions for the maintenance of production from such wells on a basis of some profit. While anything but a pessimist, Mr. Hobbs made it plain that trying to induce ancient wells to produce to the "last drop" required a lot of worry and a considerable amount of engineering skill.

R. E. Damp, production superintendent in Illinois for Carter Oil Co., presented "Operating Problems in the Illinois Basin." His paper covered a world of information on conditions in the marginal and deep portions of the basin, and what engineering skill has done to accomplish the best results in the matter of production.

The evening was given over to the banquet, which was presided over by "Bob" Payne, of the Carter Oil Co.'s Illinois staff, a witty and humorous young man who knows how to keep a crowd alive.

In the course of the evening O. D. Donnell, president of the Ohio Oil Co., Findlay, Ohio, was introduced amid applause. Mr. Donnell responded briefly and introduced the speaker of the evening, William R. Boyd, executive vice president of the American Petroleum Institute, whose subject was "The Oil Industry."

Mr. Boyd reviewed the record of public service of the petroleum industry and the importance of every one engaged in the oil business getting the real story of oil to the consuming public. The 30,000,000 motor vehicles now in this country could convey the entire population of the United States at one time, he said. It is important that the owners of all those cars be informed of the work the oil industry has done in keeping the vehicles fueled and lubricated at a low cost to the consumer.

Managing Director of Royal Dutch Says No World Shortage in Sight

No world shortage of oil is in sight, even in the distant future, according to J E. F. De Kok, general managing director of the Royal Dutch Co., in his annual report to stockholders. Discussing the question, which he said "continually crops up," of how long the oil fields of the world can continue producing sufficient quantities to satisfy requirements, Mr. De Kok said:

"Thanks to the constant progress in technique, both in the sphere of geology and that of production, there is every reason to assume that even in the distant future there will be no cause for anxiety about the extent of the available oil reserves."

The executive of the big world operating company, with headquarters at The Hague, said regarding petroleum conditions in the United States:

"The year ended with a total estimated crude oil stock of 306,084,000 bbls., or upwards of 17,500,000 bbls. in excess of that at the end of 1936. The increasing supply during the last quarter and the cessation of the seasonal demand led to a decrease in price for the products and in some cases to a reduction of the crude oil price.

"In judging the situation two favorable factors enter into the picture: The extension of the Interstate Oil Compact to September 1, 1939, and of the Connally Act to June 14 of that year.

"Both of these government measures will thus continue to exercise their salutary influence in the crude oil production sphere for a considerable time to come."

The report showed a net income in 1937 of 87,617,256 florins, or about $48,338,440, equal, after dividend payments on the 4 per cent preference shares, to 17.38 per cent on the 503,624,000 florins of ordinary stock. This compares with a net income in 1936 of 84,866,253 florins, or about $46,720,700, equal to 16.84 per cent on the ordinary stock. Dividends received on shares in various companies amounted to 91,409,015 florins, compared with 74,700,356 the year before.

The report pointed out that the consumption of petroleum products in the United States last year averaged 1,185 tons for every 1,000 inhabitants, compared with approximately 1,000 tons in 1936. In Great Britain consumption rose from 220 tons for every 1,000 inhabitants in 1936 to 252 tons in 1937; France, 166 tons in 1936 and 171 in 1937, and the Netherlands, 141 tons in 1936 and 165 in 1937. The report stressed that these figures, compared with those for the United States, show what great potentialities still exist for oil consumption in Europe.

MAY END MADISON CASE BY AGREEMENT SOON

By R. B. Pyre

MADISON, Wis., June 6.—With pleas of *nolo contendere* accepted by the court in the second antitrust oil case and fines assessed last week there is a possibility that an agreement will be worked out in the first case, the disposition of which is still pending in federal district court here.

In the first case a jury returned a verdict of guilt last January against a number of defendant oil companies and individuals following a four-month trial on criminal charges involving alleged violation of the federal antitrust acts. Motions for new trials and release of some of the defendants are pending. Judge Patrick C. Stone, of the western district, has indicated that rulings will be made covering these motions on July 12.

In the meanwhile it is reliably reported that an agreement may be worked out by defendant and government counsel which if approved by the court will bring the pending issues in the first case to a close and end the entire case. This includes the defendants who did not enter *nolo contendere* pleas in the second case.

If this is not done and motions for new trials are overruled in the first case, the defendants will take appeals to the Circuit Court of Appeals. It will also mean a second trial against those defendants who did not enter *nolo contendere* pleas in the second case last week.

Judge Patrick T. Stone accepted *nolo contendere* pleas from 13 companies and 11 of their executives on charges of combining illegally to restrict jobber margins through uniform contracts, and he fined each corporation and each individual $15,000, representing the maximum of $5,000 on each of the three counts in the indictment. Costs of $25,000, in addition to the $360,000 in fines, were imposed on the defendants jointly.

In allowing the "no contest" pleas, the court approved an agreement announced a week previously in Washington as the best means to dispose of a case which Judge Stone held, in effect, to involve an economic question rather than one essentially criminal or involving criminal intent.

The judge announced he will decide on or before July 12 the pending motions to set aside the verdict against 16 corporations and 30 individuals found guilty here last January 22 after a four-month trial, on another indictment charging conspiracy to raise and fix gasoline tankcar prices.

On the government's motion he dismissed the jobbers' margins indictment against 27 executives and employes of the companies which had entered *nolo contendere* pleas, leaving nine companies and eight individuals to stand trial in September unless the program is changed.

The number of defendants remaining to be tried in the price-fixing case was reduced by two when the court last Thursday granted a government motion to dismiss the indictment against Edward Karstedt, Denver, former vice president of the Continental Oil Co., and Frank R. Coates, New York, vice president of the Cities Service Co., both of whom are ill. Karstedt and his company were among those fined on *nolo contendere* pleas in the second indictment, but Coates was not a defendant in this case.

Government motions here last Thursday disposed of dead wood in dismissal of duplicate indictments against all defendants except those remaining to be tried in the price-fixing case and those refusing to join in the *nolo contendere* plea in the second case. The federal grand jury returned the first price-fixing indictment July 28, 1936, and the first jobbers' margins indictment on November 6, 1936. When the legality of the grand jury was challenged, duplicate indictments were returned by another grand jury on December 22, and the trial and pleas followed on these true bills, although the original indictments subsequently were held valid by Judge Stone.

In approving the agreement previously reached in Washington to accept the pleas of *nolo contendere*, subject to the court's approval, in lieu of a prolonged trial, Judge Stone issued the following explanatory statement from the bench:

"The court is of the opinion that the wrong here complained of is not *malum in se* [wrong in itself], but rather *malum prohibitum* [made wrong by statute], one peculiarly of an economic nature and one in which the attainment of a proper understanding between the parties is of itself a desirable end.

Following appearances in court here last Thursday, checks covering the fines and costs immediately were paid to the clerk of court and deposited to the account of the United States treasury.

"The suggested disposition of this case upon a basis which has been discussed between the parties, subject to the approval of the court, was presented to this court recently. The court, especially in the light of the facts developed in the so-called 'first' case, from the discussions with counsel for the government and the defendants, and from a study of this indictment, is familiar

(Continued on Page 32)

Indictments Against These Men Were Dismissed

Following are the oil company executives who will not have to stand trial on the charge of combining illegally to restrict jobber margins. With other executives they entered pleas of *nolo contendere*, but on motion of the government the indictments were dismissed by Judge Stone.

Charles L. Jones, New York, vice president Socony-Vacuum Oil Co.; H. T. Ashton, St. Louis, L. L. Marcell, Kansas City, R. R. Irwin, Kansas City, Bryan S. Reid, Chicago, and Howard A. Coffin, Detroit, division managers of same company.

Allen Jackson, vice president, and Hiram A. Lewis, assistant general sales manager, Standard Oil Co. of Indiana, Chicago.

O. J. Tuttle, Chicago, tankcar sales manager Empire Oil & Refining Co.

W. H. Merritt, Tulsa, vice president and general manager Cities Service Oil Co.

Dan Moran, president; Harry J. Kennedy, vice president, and L. T. Cramer, tankcar buyer, Continental Oil Co., all of Ponca City, Okla.

Henry M. Dawes, president; C. B. Watson, vice president, and R. H. McElroy, Jr., tankcar sales manager, Pure Oil Co., all of Chicago.

R. G. A. van der Woude, New York, former president Shell Petroleum Corp.; L. Van Eeghen, Los Angeles, former vice president; R. D. Ebbert, St. Louis, manager of tankcar sales, and P. E. Lakin, St. Louis, general manager of sales, all of Shell.

Jacob France, Baltimore, president and general manager Mid-Continent Petroleum Corp.

A. M. Hughes, sales manager, and H. A. Gardner, tankcar sales manager, Phillips Petroleum Co., both of Bartlesville, Okla.

C. L. Fleming, vice president, and N. T. Stover, general sales manager, Ohio Oil Co., both of Findlay, Ohio.

L. B. McCammon, Tulsa, general sales manager Marathon Oil Co., former subsidiary of Ohio Oil Co.

W. T. Atkins, Kansas City, Mo., vice president in charge of marketing, Skelly Oil Co.

Action in Oil Investigation by Fall Is Expected

WASHINGTON, D. C., June 7.—As congress enters what is expected to be the final week of the session, the air is charged with politics. It is declared the President has ignored the advice of subordinates who have been working for reconciliation with business and is relying again on the theories of a small group of brain trusters. These and similar charges flew thick and fast during the senate's debate over the relief appropriation bill which ended in voting the President $3,723,000,000 to spend practically without strings, as the senate voted down all proposals to earmark the funds or prevent relief money from being used for political purposes.

Antitrust Enforcement

Bolstered by its victory in the Madison oil cases, the antitrust division of the department of justice is preparing to start a vigorous trust-busting campaign as soon as additional funds become available July 1. The regular supply bill for the department of justice carries $580,060 for the antitrust division in the 1938-39 fiscal year, as compared with $472,810 available during the fiscal year ending this month. In addition to this substantial increase, President Roosevelt requested congress to add another $200,000 for antitrust enforcement, and this, or a substantial portion of it, is expected to be voted by congress shortly before adjournment.

Department of justice officials, of course, do not like to have their activities described as a trust-busting campaign, preferring to call them "efforts to preserve competition in fields where it still exists but is seriously threatened by conspiracies or the domination of large corporations or combinations." Developments in the East Coast oil investigation can be expected by fall, now that the similar case involving fixing of jobbers' margins in the Mid-Continent area has been settled by pleas of nolo contendere.

Hope for eventual modification of the national labor relations act to make its application less one-sided and to make labor unions more responsible is seen in the announcement by President Roosevelt that he will send a commission to England to study the workings of the British labor legislation. The President denied that the purpose of the commission is to pave the way for such modifications of the law and asserted it is only to make an informative study, but at various times the President has observed that the labor relations law, as well as much other recent social legislation, is somewhat experimental and that British experience has shown amendments probably will be necessary from time to time.

The liability for social security taxes of the members of casing crews working in oil fields depends upon the contract of employment between the oil producer or drilling contractor and the foreman of the crew, the Bureau of Internal Revenue has ruled. The ruling describes a casing crew as a group of men who operate together under the direction of a manager or foreman for the purpose of running or pulling casing from oil wells. Where an oil producer or drilling contractor engages a casing crew to perform services under his general direction, or under the supervision of one or more of his delegated employes, the bureau has ruled that the producer or driller is the employer of the entire casing crew and is liable for social security taxes on their wages. On the other hand, where the circumstances of the employment of a casing crew clearly indicate that the manager or foreman of the crew is engaged by the oil producer or drilling contractor to furnish the particular services required and has the right to exercise general supervision, direction, and control over the members of the casing crew, such individual members of the crew are not employes of the producer or driller for purposes of the social security act, but they are employes of the crew foreman, even though the crew works on a cooperative basis.

Submerged Oil Lands

California members of the congress are confident that they have blocked any further consideration at this session of congress of the resolution to claim title for the federal government to petroleum deposits off the coast of California. They claim to have the assurance of the speaker and other leaders of the house that no member will be permitted to call up the resolution for this purpose during the confusion which usually exists during the last few days of a session of congress, and in addition a large number of members from other coastal states have agreed to be on guard to interpose objections in case any motion is made to consider the resolution. Although a subcommittee of the house judiciary committee has been directed to hold hearings on the Dockweiler resolution to establish the title of the State of California to these submerged oil lands, it was not expected that there would be any attempt to schedule hearings during the remainder of the session.

Naval Oil Reserves

The old subject of drainage of oil from naval oil reserves cropped up again in the house last week when Representative Alfred N. Phillips, Jr., of Connecticut, introduced a resolution calling for an investigation and addressed a letter to President Roosevelt hinting that the naval reserves are being depleted by improper or illegal practices. Mr. Phillips, a member of the house committee on naval affairs, became interested in the subject about a year ago when the committee was considering bills permitting the exchange of lands within Naval Petroleum Reserves Nos. 1 and 2 in Kern County, California, and although the committee took no action the Connecticut congressman in his speech in the house last week denounced the proposal and demanded an investigation. He said the proposed exchange of lands would actually validate title in certain leases granted by former Secretary of the Interior Albert B. Fall "despite Mr. Fall's record in oil lease cases," and also would take from the authority of the President certain control over oil royalties and leases. In his letter to the President Congressman Phillips expressed the opinion that "honest people in the navy department have been hoodwinked" and that oil companies operating in and near the naval reserves in Kern County are draining the oil from under the reserves so rapidly that the navy will have no reserve available in case of emergency. He suggested that the government has a legal means for regaining title to much of the oil land in Kern County which was not known to be mineral bearing at the time that the federal government disposed of it through railroad and school grants.

Kerosene, Losing Former Place, Finds New Ones

By H. STANLEY NORMAN

Domestic consumption and exports of kerosene combine to reflect an interesting contrast to the general trend of petroleum fuel products. Available statistics for the first few months of this year show that kerosene demand, both domestic and export, is running about 8.5 per cent higher in 1938 than it did last year.

This is not to indicate that kerosene will ever regain its once dominant position. Electrification, extension of natural and artificial gas arteries to the centers of population and development of furnaces which operate satisfactorily on less expensive fuels have permanently closed innumerable consuming channels to kerosene. There exists, however, supporting evidence that consumption is again on the ascendency. The increase in domestic consumption and exports indicate that kerosene may maintain its leadership in percentage demand gain over all other petroleum products for 1938.

As a medium of illumination kerosene has faded from its once important position. Loss of the illuminating market was practically complete in this country several years ago and it is gradually declining in even the isolated, less populated sections of the world. Replacing the illuminating consumption of kerosene a demand has developed for the product as a medium of heating and cooking which promises to outstrip the purposes for which it was originally produced. Furthermore, federal loans, grants and subsidies to rural population have enabled farmers to improve their homes and implements along lines especially beneficial to consumption of kerosene.

Resettlement projects in numerous sections have brought a new standard of living to new homes and in keeping with their more comfortable and modern quarters the dwellers are no longer content with the wood stoves of the past era. The modern rural kitchen is equipped with a range operating on kerosene fuel which in design and efficiency compares favorably with the gas and electric appliances used in the urban territories where utilities are highly developed. Kerosene burning space heaters, also comparable in appearance and efficiency with gas "logs" and electric heaters, have to an extent replaced the sheet steel and cast iron wood stoves of the 1920s.

Tractors Help Consumption

While only a portion of the tractors placed in the agricultural sections in the past two or three years have been designed to operate on kerosene this market undoubtedly accounts for part of the increased consumption. The demand for kerosene as a tractor fuel, however, remains inferior to its consumption as a cooking and heating medium. In the industrial east and northeast sections factory and mill employes have turned to kerosene in many instances as a matter of economy. In contrast to the utility service there is no standby charge on kerosene burning appliances and the consumer is required to pay only for the fuel actually consumed. Elimination of the standby charge, particularly in the summer months when fuel consumption frequently falls below the minimum rates, is important to industrial and rural families whose incomes frequently are seasonal.

To supply the new spread of appliances consuming kerosene the refining branch was called upon to produce 65,308,000 bbls. last year. The previous kerosene production peak was in 1926 when 61,768,000 bbls. were turned out by this country's refineries. True, there was an increase in stocks from 5,633,000 bbls. at the end of 1936 to about 7,083,000 bbls. at the end of 1937, but since that time nearly 1,000,000 bbls. have been withdrawn from storage and production is on a scale which may set another new peak for 1938.

During the first three months of 1938, according to the Bureau of Mines, American refiners produced 16,603,000 bbls. of kerosene compared to 15,976,000 bbls. for the same period in 1937. While this new record production rate was going on the industry lowered stocks from 7,083,000 to 6,093,000 bbls.

Domestic demand for kerosene from January through March is shown by the Bureau of Mines at 15,527,000 bbls., an increase of 8.5 per cent over the demand of 14,309,000 bbls. for the same three months in 1937. Exports likewise have increased about 8.5 per cent, gaining from 1,904,000 bbls. the first three months of 1937 to 2,066,000 bbls. for the same period this year.

Other Factors in Kerosene Sales

Manufacturers of household appliances and agricultural machinery have been adroit in providing facilities through which petroleum refiners have expanded their market for kerosene. Betterment of the agricultural population by distribution of federal subsidies has magnified this market and made it attractive to manufacturers of stoves, heaters, well pumps, refrigerators, tractors, independent lighting systems, utility engines, powering lathes, saws, grinders, washing machines, shellers, separators, and scores of other general and special power requirements around all sizes of farms.

As new appliances have been developed for the comfort and convenience of the agricultural population the oil companies have progressed in their distribution facilities. Opening of new marketing frontiers in isolated sections, particularly in South

(Continued on Page 30)

Tanker E. J. Sadler unloading at Bayway refinery dock of Standard Oil Co. of New Jersey

Interesting Program Planned for Geologists' Midyear Meeting

Preliminary plans for the midyear meeting of the American Association of Petroleum Geologists to be held in El Paso, Tex., September 27 to October 2, point to an interesting program of technical papers, field trips, and entertainment features. All arrangements are under the auspices of the West Texas Geological Society. Berte R. Haigh, University Lands, Midland, Tex., is general chairman of the committee on arrangements. Cary P. Butcher, Tide Water Associated, Midland, is assistant general chairman, in charge of A.A.P.G. affairs. H. A. Hemphill, Magnolia Petroleum Co., Midland, is in charge of West Texas Geological Society affairs.

A meeting of committee heads was held last week in Midland. Technical papers to be presented were discussed, together with a consideration of administrative matters incident to the convention.

Chairmen of the various committees follow: R. K. DeFord, Argo Oil Corp., Midland, technical program; John Emery Adams, Standard Oil Co. of Texas, field trips; V. C. Maley, Humble Oil & Refining Co., Midland, transportation; Fred Wilcox, Magnolia Petroleum Co., Midland, reception; Paul Osborne, Tide Water Associated, Midland, entertainment; George Vorbe, consulting geologist, Midland, hotel arrangements; J. N. Gregory, consulting geologist, Midland, golf; W. D. Anderson, Amerada Petroleum Corp., Midland, finance; James Fitzgerald, Jr., Skelly Oil Co., Midland, publicity.

Tentative preconvention field trips are planned as follows: 1. Glass Mountains and Marathon Basin. 2. Alamogordo—San Andres Mountains. 3. Franklin Mountains.

Postconvention trips as tentatively planned include: 1. Two-day trip to Chihuahua, Mexico, by special train. Mining, geology, with evening of entertainment to be arranged by local authorities. 2. Silver City and western New Mexico. 3. Jurassic and early Cretaceous outcrops of the Hueco Basin and Van Horn unlift. 4. Hueco and Guadelupe mountains, Carlsbad cavern, potash mines, and West Texas-New Mexico oil fields; a two- or three-day trip. 5. Short trips including (a) smelter, (b) refinery, and (c) Franklin Mountains, all in or near El Paso.

On the entertainment program the following features are likely to have a place: 1. Dinner dance at Juarez, Mexico, at either New Tivoli or Lobby No. 2. 2. Golf match. 3. Bridge and tea for ladies and possibly a trip through Juarez for ladies.

W. S. Farish Thinks Crude Price Will Hold

FLEMINGTON, N. J., June 7.—If crude oil production continues to be curtailed, posted crude prices probably will be maintained, W. S. Farish, president of the Standard Oil Co. (New Jersey), said today at the annual meeting in answer to a question from a stockholder. Replying to other questions, Mr. Farish said:

"My guess at the present time is that for the full year we probably will show 33 to 35 per cent less profit than last year, assuming that things carry on about as they are.

"Fuel oil prices are down, and industrial lubricant consumption is very low, and wholesale gasoline prices are also low. The profit margins aren't anything as satisfactory as last year.

"Refinery production for the industry as a whole is on a sound basis. If it can be kept at the present trend the inventory excess of gasoline will be largely corrected before end of consuming season."

Pennsylvania Crude Association Plans Two-Day Convention

PITTSBURGH, Pa.—The Pennsylvania Grade Crude Oil Association will hold its fifteenth annual meeting June 16 and 17 in this city where it was organized. A two-day program has been arranged for the association which includes crude oil producers, refiners, and marketers and jobbers of Pennsylvania oils in its membership.

W. F. Clinger, a producer and refiner of Warren, Pa., is president of the organization for the current year and will preside at the opening session. Current merchandising problems which feature the recent developments in the refining industry will be the topic of an address by Dr. F. L. Carnahan of the Pennsylvania State College. The college has maintained a research program in refining for the past 10 years, and the results of these investigations will form the basis for this address. Another technical subject, that of oil reserves, will be discussed by Dr. R. E. Sherrill of the University of Pittsburgh.

Pacific Coast Geologists Meet For Papers and Field Trip

GLENDALE, Calif.—The annual meeting of the Pacific Coast section, Society of Economic Paleontologists and Mineralogists, held in Paso Robles June 3 and 4, was attended by 135 geologists. The principal paper was "Geology of Salinas Valley" by Prof. N. L. Taliaferro, of the University of California. The Salinas Valley has become a favorite locality for wildcat operations.

Olaf P. Jenkins, California state geologist, gave a preview of the new state geologic map. On Saturday a field excursion was led by D. D. Hughes, paleontologist for the Texas Co. to study the Miocene type section southeast of Paso Robles. William Barbat, in charge of the Standard Oil Co. of California geological staff at Taft, was organizer of the third annual field trip.

J. S. Cordell Heads Eastern Cities Service

John S. Cordell, who has been general manager of the Cities Service Refining Co., Boston, Mass., has been elected vice president and general manager of the Cities Service Oil Co. of Pennsylvania. The latter company is a newly organized unit which will have charge of the consolidated Cities Service operations in the eastern part of the United States.

The companies included in the consolidation are the Cities Service Refining Co., Cities Service Oil Export Co., Crew Levick Co., Petroleum Import & Export Corp., Inc., Cities Service Tank Line Co., Cities Service Transportation Co. and A. R. Newcombe Oil Co.

Mr. Cordell entered the oil business in the Mid-Continent area. For several years he was sales manager of the Empire Oil & Refining Co. with headquarters in Tulsa. He was transferred to Boston and made general manager of the Cities Service Refining Co. several years ago. He will now make his headquarters in the Cities Service Building in New York. The eastern operations of the company until the appointment of Mr. Cordell were handled by a committee consisting of the general managers and other officers of the several companies which are now consolidated under one management.

JOHN S. CORDELL

Agreement Regarding Oil Rights Speeds Reclamation Project

OKLAHOMA CITY, Okla.—Government agreement to let farmers retain mineral rights on land sold for a rural settlement project in Payne County has hastened acquisition of land titles. When oil was struck in the Ramsey pool the government ran into trouble as it sought to obtain land for the Lake Blackwell reclamation project.

Although several dry holes were drilled in the project area, Phil Harris, special government attorney, said farmers maintained the oil play enhanced the value of their land and held out for more money. Then, Mr. Harris said, the government hit upon the idea of permitting farmers who sold their land to keep the mineral rights for 25 years, and since then several out-of-court settlements have been made. He said 15 farmers against whose lands condemnation suits were filed have agreed to negotiate with the government for settlement on this basis.

Income From Oil Leases on State Lands Enriches Texas Schools

AUSTIN, Tex. — Income of the permanent public school fund of Texas from oil leases on state lands and on royalties on production has increased from less than $100,000 annually to more than $1,000,000 annually during the past two years, according to W. H. McDonald, state land commissioner. During the past several months large areas of state-owned lands in the tidal waters of the Gulf of Mexico have been leased to major companies, and three new fields in submerged land areas already have been discovered.

"The school fund should receive approximately $10,000,000 through high royalties and overriding oil payments from the Laguna Madre area alone," Mr. McDonald said. "The Laguna Madre sector now has two producing wells. Potential income from the entire coastal area is $125,000,000."

THE MARKETS*

CRUDE OIL: *Threats of lower prices to be made effective by independent refiners in Oklahoma and Kansas have not been made effective. The large reductions in current output have improved several weak spots in the crude market which is generally considered stronger than it was a month ago.*

REFINERY: *General advance of one-eighth cent in Mid-continent gasoline prices. Improved gasoline buying and better tone to market reported in other refining areas. Fuel oil, gas oil distillate firmer. No important changes in lubricants.*

TANK-WAGON AND POSTED DEALER: *Prices unchanged.*

FINANCIAL: *Oil stocks move within narrow range with volume reduced. Average of 30 representative stocks for the week ending June 4: High, 25.52; low, 24.51; close, 25.38.*

**Detailed information in market section.*

the OIL AND GAS JOURNAL

PRODUCING REFINING NATURAL GASOLINE PIPE LINE

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Vulnerable Point

As the half-year draws to a close the oil business has reason to congratulate itself on the sustained demand for most of its products.

Over the next four months more gasoline will be consumed in the United States than in any similar period of the past. Gasoline exports are far ahead of last year.

The total demand for kerosene is establishing new records. Furnace oils and diesel fuels occupy favorable positions.

But this business does have customers who are feeling the depression and it is reflected in the industry's statistical position to such an extent that it no longer can be ignored. Stocks of products classed as fuel oil and gas oil in recent months have been accumulating at too rapid a rate.

The sale of these products, together with lubricants, is directly affected by general business conditions.

The collapse in price in refinery lubricating oils this year is partially due to the fact that while the motor oil demand is holding to last year's levels, the industrial requirements are substantially less.

During the 1935-1937 period the demand for all fuel oils expanded so rapidly that an actual shortage threatened in several refining areas. Last fall this trend changed almost overnight.

Automobile plants, steel mills, and other industries whose business was declining bought less fuel oil. Later the same situation developed among other large consumers, including railways and the important marine trade.

The net result has been that stocks of fuel oil, gas oil, and distillate have climbed to 135,000,000 barrels, a 40 per cent gain for the year.

This situation cannot be dismissed with the contention that fuels are a by-product of little or no consequence to the industry as a whole. For the entire country the yields of fuel oil, distillate, and gas oil represent 40 per cent of a barrel of crude oil and approximately 25 per cent of total plant revenue.

What happens when these products are overproduced?

The immediate result is lower prices, with correspondingly lower plant revenues. This trend has been under way for several months.

The price reactions do not stop there. The heavier oils are potential raw material in the manufacture of gasoline through cracking operations. As the oils sink to low levels larger quantities are utilized in the manufacture of low-priced gasoline. If this operating condition continues long enough, these lower gasoline prices become a general market factor.

In effect it means that running a barrel of excess fuel oil or gas oil to storage represents overproduction which is just as important marketwise as when unneeded additions are made to crude oil and gasoline inventories.

This inter-price relationship between crude and its most important products—gasoline and fuel oil—has been demonstrated many times in the past.

The problem is not easy of solution. Right now a further curtailment in refinery operations would not only reduce the quantities of fuel oil going to storage but also would bring about the needed larger reductions in gasoline stocks.

The long-range remedy is for the individual refiners to make effective the flexibility which most of them have in their plant operations, expanding the output of those products for which there is a demand and curtailing those whose market is temporarily restricted.

Finally foresight rather than hindsight is desirable in the application of these adjustments.

Shreveport Geological Society Adopts New Nomenclature

By GEORGE WEBER

During the past two years, the outstanding development in North Louisiana and South Arkansas has been the discovery of new deep production. Success at Rodessa, Lisbon, Cotton Valley, Schuler and other fields prompted and gave impetus to the trend toward deeper exploration throughout the area.

With the increase in deeper drilling has come a greater knowledge of the older formations in the district, and consequently a need for a standardized nomenclature. The project has been receiving study and consideration by the Shreveport Geological Society. Recently a simplified system for naming of the Lower Cretaceous formations was adopted by that organization.

The new nomenclature will facilitate the correlation of findings by the geologists of the various companies operating in the tri-state area. It combines established names of the widespread formations, and incorporates some new names to apply to sections characteristic of the immediate district.

The name "Paluxy Formation" is continued as the recognized section found in other districts. Underlying the Paluxy is what is termed the Glen Rose Sub Group, which is divided into three parts: Upper Glen Rose Formation, Glen Rose Anhydrite and Lower Glen Rose Formation. The productive Lower Glen Rose is again subdivided into two members, named for the field where it is producing.

The Rodessa member of the Lower Glen Rose includes the Hill, Gloyd, Dees and Young producing sands of Rodessa. In addition, in this classification are found the Jeter zone of Sligo, Bossier Parish field, the gas sand in the Logansport field, and the Kilpatrick Gas Zone of the Sugar Creek field in Claiborne Parish.

The second member of the Lower Glen Rose, termed the Pine Island Member in the new nomenclature, is found productive in the Dixie and Dillion sands of Pine Island, a Caddo Parish field. The Pettet Zone of Sligo, Bossier Parish, also falls in this classification, as well as the Patton Zone of Lisbon, Claiborne and Lincoln parishes, and the Darrett horizon at Sugar Creek. These producing sands also occur in the transition zone between the Pine Island Member of the Lower Glen Rose, and the Travis Peak formation which underlies it.

The universally adopted name Travis Peak is incorporated in the new local system. It is found productive in the Holloway sand of Cotton Valley, Webster Parish field, and the Herndon sand of Pine Island, Caddo Parish, both sands occurring in the top of the formation. The Darrett zone producing at Sugar Creek is also classified as Travis Peak, together with the Carter sand lense which occurs in the basal part of the Darrett zone.

An important adoption is the name Cotton Valley Formation, occurring in what is believed to be the Pre-Trinity. This brings under one name the sections which have heretofore been classed as Lower Marine, Schuler, Lower Travis Peak, etc. Two important producing horizons discovered in the district recently are classed under this name. The deep Bodcaw and Davis sands of Cotton Valley will hereafter be classed in the Cotton Valley formation. The Schuler facies of the Cotton Valley are productive in the upper Morgan sands, and the Jones sand of Schuler, the latter being the most important sand in the field to date.

Underlying the Cotton Valley is a section now termed the Buckner Formation. It should be noted that although the formation gets its name from the Buckner field of Columbia County, Arkansas, it is not the producing sand in that field.

Another important adoption in the new system is the name of Smackover Limestone. This section, at present the object of considerable interest in South Arkansas, was formerly called the Big Lime, or the Permian Lime. Although its age is not definitely established due to absence of fossils, the Smackover Lime is not considered as Permian, according to the new, accepted nomenclature.

The top oolitic member of the Smackover Lime, locally called the Reynolds Lime, produces gas and distillate in the Schuler field. In addition it produces gas and distillate at Snow Hill, another Union County, Arkansas, field located on the flank of Smackover.

The present most interesting area for the Smackover Lime is the trend formed by the Buckner and Schuler fields. Midway between both fields, which produce from the Smackover, is the yet unnamed field discovered by the Kerr-Lynn Oil Co. near the town of Magnolia. In addition, wildcatting in the trend is showing indications of the opening of other lime fields of this classification.

Underlying the Smackover Lime is the Eagle Mills Formation, the deepest formation included in the recently adopted nomenclature. It is nonproductive to date. The anhydrite and salt in South Arkansas is considered equivalent in age to the Eagle Mills.

NEWLY ADOPTED NOMENCLATURE FOR GEOLOGIC FORMATIONS IN NORTH LOUISIANA AND ARKANSAS

Comanche Series	Trinity Group	Glen Rose Sub Group		*Paluxy Formation* — Nonmarine upper Trinity sands grading southward and southwestward into marine. (Oil producing zones of Caddo district and De Soto-Red River field in upper part of Paluxy.)
				Upper Glen Rose Formation—Marine limestones, shales, sandstones and thin anhydrite stringers.
				Glen Rose Anhydrite — Massive anhydrite.
			Lower Glen Rose Formation	*Rodessa Member* — Marine limestones, oolites, coquinas, shales and thin anhydrite stringers. (Oil producing zones of Rodessa in this member. Also Jeter zone of Sligo; gas at Logansport field and Kilpatrick gas zone of Sugar Creek.)
				Pine Island Member — Black and green shale, some brown shale in lower part. Limestone at base locally. (Dixie sand and Dillion sand of Pine Island in this member; also Pettet zone of Sligo; Patton zone of Lisbon field and the Darrett horizon of Sugar Creek occurs in this member and its transition zone with the underlying Travis Peak.)
				Travis Peak Formation — Nonmarine red shales, siltstones and mudstones. (Herndon sand of Pine Island; Holloway sand of Cotton Valley in top of Travis Peak. Darrett oil zone of Sugar Creek. Carter sand lense in top of Travis Peak and in basal part of Darrett zone.)
Pre-Comanche (?)	Pre-Trinity (?)			*Cotton Valley Formation* — Black marine fossiliferous shale in Louisiana Basin. (Davis and Bodcaw sands of Cotton Valley.)
				Schuler Facies of Cotton Valley Formation —Nonmarine red shales, mudstones, siltstones. Typically developed in the Schuler field, Union County, Arkansas. (Morgan sands near top and Jones sand at base in Schuler field.)
				Buckner Formation — Red and green shales, anhydrite, streaks of dolomitic limestone. Salt lenses at Rodessa (?)
				Smackover Formation — Buff limestone with Reynolds oolitic member at top. (Gas and distillate at Snow Hill; oil at Buckner; gas and oil at Schuler.)
				Eagle Mills Formation — Red shales and mudstones. Anhydrite and salt in South Arkansas is considered equivalent in age.

KEROSENE

(Continued from Page 27)

America and in the Far East, is another important factor in expanding the demand for kerosene. Modern highway systems are playing their part in opening hitherto inaccessible kerosene markets even in this country. Farmers assured of regular delivery or as required are far more susceptible to installation of consuming facilities than under previous conditions when immediate outlay for a supply sufficient to carry over a winter or the busy planting or harvest seasons involved a financial hardship.

Another and perhaps dominant factor in consumption of kerosene is the price at which it is available to the public. Starting in 1926 when the average kerosene price for representative cities reached 15.5 cents per gallon the trend has been generally downward with slight interruptions only in 1929 and again in 1934, until general improvement in 1937.

Currently the kerosene price along the Atlantic Coast states ranges from around 8.5 to 14 cents in tank-wagons and from about 4¾ to 5½ in tank-cars. The tank-wagon price low prevails in the districts of greatest consumption with the higher quotations logically applying in the territories more remote from deep water transportation facilities and in areas where cost of transportation and volume of consumption exert influences. The general market is slightly higher in the inland districts and prices applying in the higher parts of the Rocky Mountain section are the highest consistent with the cost of making the fuel available to the consumers.

The art of refining petroleum has contributed immeasurably to producing a cleaner, more acceptable fuel and advancements in packaging have played a part in lowering sales resistance. Replacement of the conventional tin bucket and the equally well-known potato-covered spout with clean sealed or leak-proof caps and the glass containers which become a part of the consuming appliance are perhaps minor, but nonetheless important details of distribution which have aided in popularizing kerosene as a domestic convenience.

In the event domestic consumption and exports of kerosene maintain the gain of 8.5 per cent over 1937 business, total requirements from this country for 1938 will be approximately 69,285,000 bbls. The decline of kerosene exports in 1935 when the drop was about 30 per cent was arrested in 1936 when a mild recovery was registered. However, 1937 exports of kerosene totaling 8,907,000 bbls. were about 28.3 per cent above 1936. Conditions do not indicate that a comparable increase will be staged this year, but if the rate of 8.5 per cent is maintained the United States will export about 9,664,000 bbls. of kerosene in 1938. Likewise, if domestic consumption of 54,951,000 bbls. is increased 8.5 per cent this year, the rate which prevailed for the first quarter, the United States internal demand will be approximately 59,621,000 bbls.

Domestic demand for kerosene during the first three months of 1938 is reported in preliminary figures by the Bureau of Mines at 15,527,000 bbls., which, combined with exports of 2,066,000 bbls. for the same period, yields a total of 17,593,000 bbls. During the first three months of 1937, a period in which business conditions were considered reasonably satisfactory compared to 1938's first quarter, domestic kerosene demand totaled 14,309,000 bbls. and exports amounted to 1,904,000 bbls. for an aggregate figure of 16,213,000 bbls.

Proration Is Invoked Again in Panhandle Sour Gas Area

By MITCHELL TUCKER

AUSTIN, Tex.—The Railroad Commission of Texas continues in its efforts to secure "uniform, proportionate and ratable" withdrawals in the Panhandle gas fields. Its latest step in this direction was contained in Order No. 10-316 issued on May 1, 1938, for the purpose of fixing daily field allowables and allocation between wells in the sour gas portion of the West Panhandle area.

The new order has already been thrown into court. An interlocutory injunction restraining the railroad commission from enforcing the proration plan was requested in federal court by F. C. and E. P. Henderson (the Henderson Co.). The state won the first round of the new legal battle when the court refused to grant the temporary restraining order. As a counter attack, the attorney general of Texas has filed suit in state district court for an injunction restraining the company from voilating the present sour gas order.

An earlier attempt to accomplish this purpose was contained in orders issued August 28 and September 25, 1935. Temporary injunction was granted soon thereafter restraining the commission from enforcing the orders and after trial through the U. S. District and Supreme courts, the orders were finally invalidated in February, 1937, and permanent injunction granted. Since the latter part of 1935 the only restriction on withdrawals in this field has been the statutory limit of 25 per cent of open flow potential, which makes no attempt to secure ratable takings from the reservoir.

The present order, after determining monthly nominations for sour gas demand to pipe lines, gasoline and carbon black plants, allocates allowable withdrawals to individual wells on the basis of one-third to well potential, and two thirds to the product of the acreage containing the well by the observed rock pressure at the well. This method of allocation was thought to be more equitable to all concerned, and more closely approaching withdrawals with respect to gas in place than any other. It was made after a great deal of study by the commission engineers, and in the light of the decision handed down by the high court which invalidated the former order promulgated for the same purpose.

The original order placed the allocation of the field's allowable to individual wells on a 50 per cent potential and 50 per cent acreage basis, arbitrarily assigning each unit 640 acres. The famous cases, *Consolidated Gas Utilities Corp.* v. *E. O. Thompson et al*, and *Texoma Natural Gas Co.* v. *E. O. Thompson et al*, were combined for their appeal to the Supreme Court. Two of the principal reasons offered for declaring the orders illegal follow:

First, that complainants were being dispossessed of their property without compensation or authority, because ". . . it fixed the allowable production from plaintiff's wells below the amount they required and had been taking from their wells to serve customer needs, and makes it compulsory upon them to purchase from wells of others gas of which plaintiffs have an already ample supply." It was claimed the order was not to prevent waste, as plaintiffs were not operating their properties in a wasteful manner, but was for the purpose of furnishing a gas market to those having none.

Second, it was held that the lack of a pressure factor in the formula failed to lessen or prevent drainage. At that time the aggregate production of sour gas from that field had been 4,427,643,131,000 feet. Of this total, the pipe line companies (of which the plaintiffs were one) had ownership of 56 per cent of the reserves but had only produced 529,545,454,000 feet, while owners of the other 44 per cent of the reserves had produced 3,898,096,776,000 feet. Furthermore, the rock pressure of wells not connected to pipe lines was materially lower than of those connected. Plaintiffs contended that if the order was placed in effect they would be forced to buy back gas which had been allowed to drain across their property line into adjoining lands.

One highly significant point in the Supreme Court's decision was that, for the first time, it was held proration could be properly applied for the purpose of preventing drainage across property lines, as well as for prevention of waste. This particular portion of the opinion follows:

"It may be assumed that House Bill 266 should be construed as authorizing regulations to prevent waste, and to create and protect correlative rights of owners in a common reservoir of gas to their justly proportionate share thereof, free of drainage to neighboring lands. It may be assumed, also, that the statute so construed is a valid exercise of the state's undoubted power to legislate to these ends, and that it may validly delegate to the railroad commission authority to promulgate regulations therefor."

The oil and gas laws of all states were substantially strengthened by this portion of the opinion.

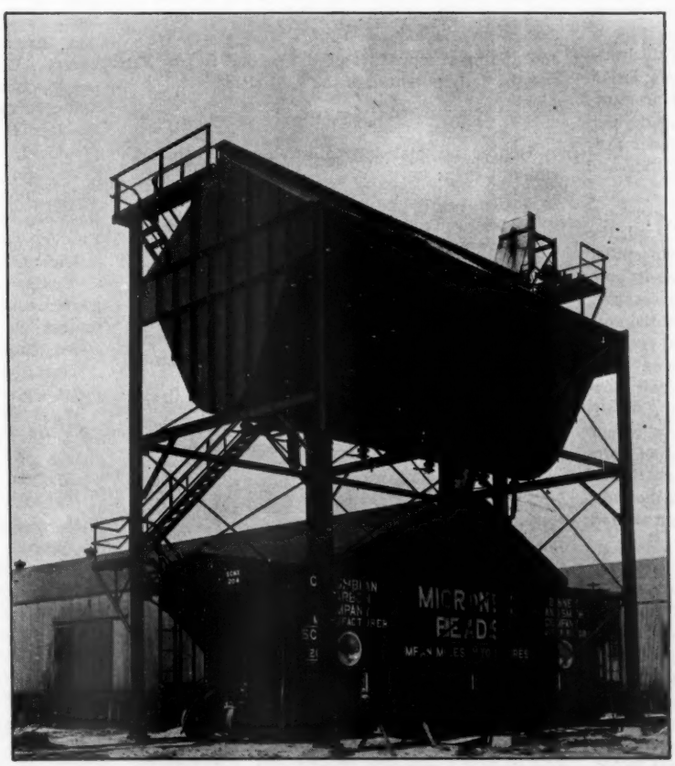
In the commission's new proration plan a special effort was made to write an order which would work for the good of the sour gas reservoir as a whole and result in a greater ultimate recovery of gas for the benefit of the state and all property holders, as well as comply with all statutory limitations upon delegated powers. Authority for the issuance of this order is received from two Texas statutes. House Bill 266 is designed to prevent wastage of gas and to adjust correlative rights. Senate Bill 407 goes one step further in stating that production of gas wells shall be prorated so as to prevent noticeable and preventable drainage of gas across property lines.

Reporting on the results of the commission engineers' studies of the sour gas field situation, the new order in part states:

"The commission finds that the withdrawals of dry natural gas from the sour gas area of the West Panhandle field have been throughout the history of the field, nonuniform, disproportionate and unratable.

"The commission finds that there is now, and there has been for some time past, undue, preventable and cognizable drainage of gas between tracts of land in the West Panhandle gas field, and that this undue drainage between tracts has been brought about by disproportionate, nonuniform and unratable withdrawals of gas between properties and wells, as has been illustrated by testimony.

"The commission finds that unless there be a restriction in the amount of production of sour natural gas as provided by statute, and a distribu-



New and enclosed type loading troughs at carbon black plant in the Texas Panhandle area

tion of such production by a formula which operates to prevent said undue drainage between properties, the present system of nonuniform, disproportionate and unratable withdrawals will continue and differentials in pressure will be accentuated, with resultant undue drainage between tracts of land.

"In order to approach uniform withdrawals from the sour gas area of the West Panhandle field, the gas must be taken ratably with respect to the reasonable production requirement. In establishing ratable production, it is necessary for the commission, first, to determine an efficient drainage area, and second, to devise a fair and uniform system of proration to be applied to the field."

In seeking to allocate withdrawals upon this desirable even basis, the commission sets out an accepted formula for the estimation of gas reserves in place, and then proceeds to fabricate a workable formula from it. The equation advanced for computing gas reserves is as follows:

$$Q = \frac{A \times T \times Po. \times RP}{B_p}$$

where

Q = gas in cu. ft.
A = area in sq. ft. (43,560 ft./ac.)
T = thickness of pay formation
Po. = porosity expressed in per cent
RP = rock pressure in lb. per sq. in
B_p = base pressure in lb. per sq. in.

The area and pressure factors are quickly ascertainable for all practical proration purposes. The thickness of pay section and porosity vary considerably over the producing area, and their relative value are not available. In lieu thereof, the most reliable index of permeability, porosity and sand thickness is the potential of the well. In justifying the use of the potential factor in the allocation formula which seeks to provide for even withdrawals of gas from the reservoir, the commission order states:

"The open flow potential or the ability of the gas well to produce gas against atmospheric pressure is dependent upon a number of factors, among which are pressure in the sand, the porosity of the sand, the size of the void spaces, the thickness of the formation and the method of completion.

"Where two wells have the same rock pressure, the same method of completion, the same permeability and the same porosity, the open flow potential will vary as the thickness of the sand which has been penetrated.

"If two wells have the same rock pressure, method of completion, and thickness of sand, the open flow potential will vary with the permeability and if the void spaces are of uniform size in both wells, the open flow will vary with the porosity.

"Under these conditions the flow potential constitutes a direct measure of the amount of gas contained in the region around the well bore. In a great number of cases, however, the open flow potential varies not so much because of the difference in the porosity or thickness, but rather because of the difference in the method of completion or in the size of the voids. When this is true the open flow potential will not be a measure of the amount of gas contained in the region around the well bore."

The use of the rock pressure factor is properly applied in that it works to prevent drainage across property lines, and to allocate according to gas in place. It might also be considered a correction factor against properties which have undergone excessive withdrawals in the past and are now situated in low pressure areas.

Computations

Computations for allocating withdrawals to the 470 wells on 134,375 acres, having an aggregate potential of 10,177,281,000 feet, and a daily allowable of 581,837,000 feet, under the new Panhandle sour gas order are as follows:

Nominations, or total daily allowable ..... 581,837,000 ft.

Two-thirds of nomination (rock pressure × acreage) ..... 387,891,333 ft.

One-third of nomination (potential, all wells) .. 193,945,667 ft.

Two factors are determined:

$$\frac{387{,}981{,}333 \text{ ft.}}{\text{(Rock pressure} \times \text{acreage all wells)}} = 0.28007656 \ (F_1)$$

$$\frac{193{,}945{,}667 \text{ ft.}}{\text{(Potential, all wells)}} = 0.58841262 \ (F_2)$$

The total volume allowed to each well is obtained by first multiplying the first factor (F_1) by the product of rock pressure × acreage (RP×A) of the respective well:

$$V_1 = F_1(RP \times A)$$

and adding the product of the second factor (F_2) and the daily potential of the well (P):

$$V_2 = F_2(P)$$

Hence, the total daily allowable for each individual is then:

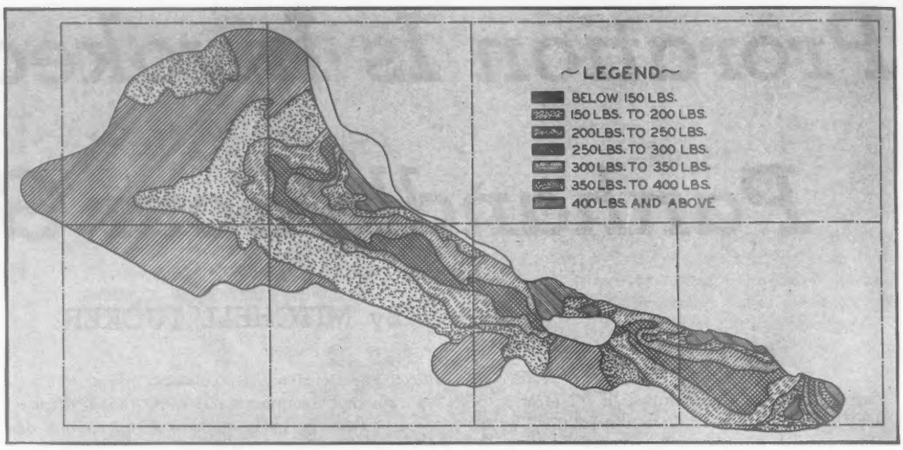
$$V_1 + V_2 \text{ or } F_1(RP \times A) + F_2(P)$$

If, however, any wells under this calculation are given an allowable in excess of the statutory limit of 25 per cent of their daily potential, a new calculation takes place. Their top allowable (25 per cent of potential) is subtracted from the original total field allowable, and the remainder is reallocated as before.

As a result of the present prevailing sour gas proration order in the West Panhandle field, monthly allowables by companies are as follows:

	M.C.F.
Canadian River Gas Co.	429,128
Henderson Co.	215,500
Huber Petroleum Co.	1,605,826
Magnolia Petroleum Co.	955,417
Northern Natural Gas Co.	22,229
Panhandle Power & Light	8,358
Phillips Petroleum Co.	7,892,322
Portland Gasoline Corp.	261,435
Shamrock Oil & Gas Corp.	4,463,356
Shell Petroleum Co.	56,240
Skelly Oil Co.	1,237,837
Texoma Natural Gas Co.	126,494
Field fuel	244,276
Unconnected wells	518,529

The present 470 wells in the sour gas area are given a productive area of 134,388 acres, or an average of one well to 287 acres. There remains approximately 257,000 proven but undeveloped acres in that portion of the field, which would provide room for 400 additional wells if the remainder of the development is on a density of one well to 640 acres.


~LEGEND~
BELOW 150 LBS.
150 LBS. TO 200 LBS.
200 LBS. TO 250 LBS.
250 LBS. TO 300 LBS.
300 LBS. TO 350 LBS.
350 LBS. TO 400 LBS.
400 LBS. AND ABOVE

Pressure contour map of Panhandle gas field last fall

MADISON

(Continued from Page 25)

with what is here involved. Realizing the solemn responsibility of the court, one which cannot be shared or delegated, I have come to the conclusion that the disposition of this case, as recommended by the government is, under all the circumstances, fair and in the public interest, and one which this court should and therefore does approve."

The 13 companies and 11 executives who paid fines last Thursday are Socony-Vacuum Oil Co. and Charles E. Arnott, vice president, New York; Wadhams Oil Co. and A. G. Maguire, board chairman, Milwaukee, Wis.; Standard Oil Co. of Indiana and Amos Ball, general sales manager, Chicago; Cities Service Oil Co. and its subsidiary, Empire Oil & Refining Co., and Harry D. Frueauff, vice president, Tulsa; Continental Oil Co., and Edward Karstedt, former vice president, Denver, Colo.; Pure Oil Co. and G. C. Morris, sales manager, Chicago; Shell Petroleum Corp. and Alexander Fraser, president, St. Louis, Mo.; Sinclair Refining Co. and J. W. Carnes, vice president, New York; Mid-Continent Petroleum Corp. and Robert W. McDowell, vice president. Tulsa; Phillips Petroleum Co. and Frank Phillips, president, Bartlesville, Okla.; Ohio Oil Co., Findlay, Ohio; Skelly Oil Co. and W. G. Skelly, president, Tulsa.

Companies and their executives whom the government proposes to bring to trial here September 26 on the charge of combining to restrict jobber margins, follow:

Gulf Refining Co. and William V. Hartmann, Pittsburgh, Pa., vice president.

The Texas Co. and W. S. S. Rodgers, president, New York; H. W. Dodge, vice president in charge of sales, New York; S. B. Wright, territorial sales manager, Chicago.

Tide Water Associated Oil Co. and Edward L. Shea, executive vice president, New York, and J. W. Warner assistant vice president, Tulsa.

Barnsdall Refining Corp. and Edward B. Reeser, president, Tulsa.

Globe Oil & Refining companies of Oklahoma, Illinois and Kansas and I. A. O'Shaughnessy, president, Minneapolis, Minn.

The National Refining Co., Cleveland, Ohio, and the Deep Rock Oil Corp., Tulsa.

On the government's motion Judge Stone dismissed the price-fixing indictments of July 28 against E. W. Sinclair, New York, president of the Sinclair Refining Co., who was not indicted in the December true bill.

STATE CAPITALS

KANSAS

Authority of the state to require buyers of oil to take more Kansas crude than they need or desire was questioned by representatives of three major companies to a hearing before the corporation commission in Topeka last week.

The companies, Stanolind Crude Oil Purchasing Co., Phillips Petroleum Co. and Sinclair Prairie Oil Marketing Co., had been asked by the commission to appear and show cause why they failed to take their full allowable production in May. The three purchasers had a shortage in excess of 100,000 bbls. of the Kansas allowable for the month.

With the exception of some testimony taken under oath for the sake of the record, the hearing was largely informal, with commissioners, purchasers, land and lease owners and other interested persons participating.

The company representatives said they had taken all the oil they had nominated at the May proration hearing, and that the allowable was in excess of the amount they had expressed a desire for. They contended the allowable production was permissive, that they could take any amount not exceeding the figures fixed by the commission, and expressed doubt the commission could legally require them to take all the oil allowed if it is in excess of their request. They said that if the June allowable is not greater than the May figure they may be able to take the full amount this month, and expressed the hope of making an agreement with other purchasers to take up their deficiencies, if any, for the period.

The commission, which fixes the monthly allowable for each pool and prorates it among buyers, held that if one company fails to take the full amount another company purchasing from an adjoining lease at the full 100 per cent allowed may be draining oil from the lease of the landowner whose company is not taking the full amount. The commission made no formal order at the hearing, however, taking the matter under advisement.

The June allowable for Kansas was set at 160,000 bbls. daily, the same amount as for May. Potential production of Kansas wells continued to increase, reaching a peak of 3,313,449 bbls. on May 20, according to commission records.

OKLAHOMA

Pipe line proration was in effect in Oklahoma again this month, with the announcement of Carter Oil Co. that "due to further loss of market" it would have to revert to a cut of 20 per cent in its purchases of crude oil in the state. The cut was effective June 1, according to announcement of J. J. Conry, president.

The reduction does not apply in the Oklahoma City field, where additional outlet through other purchasers was obtained. In the Tussy and Wildcat Jim pools the company announced it would not purchase more than 10 bbls. per well daily, averaged on a lease basis. Elsewhere in the state the 20 per cent cut applies.

The belief that other purchasers in areas where the Carter company is curtailing its runs will move in and gradually absorb the reduction was expressed by state conservation officials. W. J. Armstrong, chief conservation officer, said that as a result of "assistance offered the Carter" it now seems there will be little need for a second June allowable order.

The Oklahoma situation was cleared considerably when Shell Petroleum Corp. notified the corporation commission it would make 100 per cent purchases in all fields, except a few southern Oklahoma areas, during June and that it would be able to make up the amount of oil it cut off by pipe line proration from April 10 to May 15. It is following the Carter Oil Co. and Rock Island Refining Co. schedules in southern Oklahoma.

Proration enforcement officers were criticized by A. S. J. Shaw, corporation commissioner, at a hearing Monday, for failure to enforce the May production allowable order. Oklahoma daily average production for May was 459,000 bbls., against an average allowable of 422,742 bbls., according to Mr. Shaw. He asserted that the May 11 emergency order fixing the allowable at 405,000 bbls. daily, a reduction from the original May allowable of 460,000 bbls., was unnecessary.

Minimum well allowables were attacked in two suits set for hearing before the corporation commission June 16. The suits, filed by H. I. Grimes and Grison Oil Co., involve wells in the Oklahoma City field. They charge minimum allowables are unconstitutional in that they are not based on provisions of the proration laws.

TEXAS

Texas oil producers were cheered last week with encouraging reports from Texas Railroad Commission officials that some of the severe restrictions contained in the June proration order would be retracted in July. The two-day per week shutdown program, together with top field allowables and mid-month adjustments in allowable to care for new completions, constitutes about the most stringent proration program ever experienced in Texas, but seems to be getting results.

Attention is now turned to two pending events in the Texas proration picture, (1) the mid-month order to be promulgated on June 16 which will readjust all per well allowables to care for new completions made from June 1 to 16, and (2) the statewide hearing called at Austin on June 20, where the commission will receive data and testimony preparatory to issuance of the July order, and any other matters presented before them.

Railroad Commissioner Ernest O. Thompson issued encouraging statements last week on the improving situation, exerpts from which are as follows:

"Lifting of Saturday shutdowns may be feasible if consumption picks up. . . . The present outlook of the petroleum industry is encouraging, and the strict curtailment policies initiated by the commission shortly after the first of the year are beginning to show definite results. . . . Three weeks ago the outlook was decidedly unfavorable, and the prompt and decisive measures adopted by the commission were necessary to meet this serious condition. . . . The intelligent cooperation which the oil operators of Texas have given us in our efforts to meet this emergency, and the reduction in allowables in Oklahoma, Kansas, New Mexico, Arkansas and California, have contributed effectively in maintaining the stability of the oil industry. Louisiana was conspicuously absent from those states mentioned who had cooperated in the present emergency."

In explaining further the need for issuing new proration schedules for the entire state on June 16, or at mid-month, it was stated:

"In the past it has been the custom of the commission to set a basic allowable at the beginning of the month and add to this basic allowable the allowable of the new wells as they were completed. Due to the active drilling campaign in many fields the result was a sharp increase in the daily allowable long before the end of the month. In order to consolidate the gains already effected by strict curtailment of production, the commission has adopted for June the policy of reallocating the basic allowable as of June 1 to the wells which are on the schedule as of June 15, 1938.

As rather definite proof of how effective the mid-month readjustment is in retarding drilling, there was a reduction of 97 permits issued by the railroad commission last week, compared to the previous seven-day period. A breakdown of this reduction follows:

DRILLING PERMITS GRANTED IN TEXAS

District—	Week ending May 27	Week ending June 3
Gulf Coast	85	32
Southwest Texas	34	23
West Central Texas	22	21
West Texas	20	25
North Texas	12	9
Panhandle	9	6
East Central	21	16
East Texas field	26	0
Weekly total	229	132
Difference		97

It is understood, of course, that the granting of drilling permits is not a true index of activity as the wells may not be drilled immediately, but it is sufficiently indicative of the future to show the general trend.

At the statewide hearing in Austin on June 20 there will probably be some strong attempts to justify abolition of the Saturday shutdowns, but it is rather generally agreed that the Sunday production holiday is here to stay for a while.

It is expected also that the matter of granting special allowables to those having foreign contracts to satisfy will be brought up at the statewide hearing. The commission has never called special hearings to consider applications for special allowables where a foreign market has been developed, and for that reason it is necessary to present both applications and objections at the monthly hearings.

Those who feel that inequities were contained in the first mid-month adjustment order will also be given a chance to be heard in Austin on June 20.

The "marginal proration plan" in Texas is gaining a stronger following, and will probably continue to do so if it appears that the one or two-day shutdowns are to become a permanent factor in the state's proration regulation. The plan has been stated in various forms, but is briefly one to grant the marginal daily allowables (as fixed by statute) to each well in the state. The difference between the determined market demand and that allocated on the marginal basis would then become the "proratable oil" and be apportioned among the various nonmarginal fields upon a potential, pressure, or other basis.

Four cases involving interpretations of the oil conservation statutes were decided by the state Supreme Court. Judgment of the Austin appellate court was reversed and that of the District Court affirmed in the case of Railroad Commission et al v. Beaver Reclamation Oil Co. The District Court had sustained a commission order refusing a tender to move 36,462 bbls. of oil trapped by the Beaver company near Gladewater. The appellate court had held that the tender board should have granted the permit.

The case of Atlantic Refining Co. et al v. Gulf Land Co. et al from Travis County was reversed and remanded with instructions to grant appropriate ancillary relief. This had the effect of invalidating a permit granted by the commission to Gulf to drill a second well on its 2.35 acres in Gregg County.

In two companion cases styled Magnolia Petroleum Co. v. Railroad Commission et al. Justice Blair dissented in one case and stated that "the record does not disclose the reason why the trial court declared one permit valid and the other invalid under identical facts." The permit set aside by the higher court had been granted to Edith Osborn Pyle to drill a well on a .5-acre tract 104 feet wide and 208 feet long near Kilgore. Magnolia, owner of adjacent lease of 44 acres, objected and sought cancellation. It was held that the segregation was a voluntary subdivision from a larger tract of 54 acres susceptible to development as a whole and therefore it gave Mrs. Pyle no vested right to an exception.

Refinery Expansion

Call for Bids on New Montana Refinery

SHELBY, Mont.—A call for bids for the construction of a 3,000-bbl. refinery in northern Montana was issued last week by Producers Refining Co., of Shelby, bids to be received on June 8 and awards to be made on or before June 15. Three contractors are figuring on the job and are expected to submit bids.

The refinery will have a Dubbs cracking unit of a capacity representing about half of the throughput capacity of the plant. James W. Johnson, organizer of the refinery project, has made no announcement regarding the location of the plant, which is expected to be either at Shelby or Cut Bank.

Crude Runs to Be Started This Week in Idaho Plant

DENVER, Colo.—The new Pocatello, Idaho, refinery of the Idaho Refining Co. is expected to be placed in operation on or before June 10. The plant has a daily crude capacity of 1,500 bbls. and has much the same stock ownership as that of the Wasatch Oil Refining Co. of Salt Lake City, Utah, and the Inland Empire Refineries, Inc., of Spokane, Wash.

California Polymerization Plant Making Test Runs

NEW YORK.—Tide Water Associated Oil Co.'s new polymerization plant at Avon, Calif., is undergoing testing operations and is expected to be in routine service by the end of June. The plant, designed to operate in conjunction with old and recently added cracking facilities, is expected to produce about 180,000 bbls. of polymer gasoline per year. It was built by the Alco division of the American Locomotive Co.

Plans Completed for Small Turner Valley Refinery

CALGARY, Alberta.—Plans have been completed for incorporation of the Okotoks Oil & Refining Syndicate, to erect a small refinery at Okotoks, near the Turner Valley field.

Atlantic to Increase Storage At Three Water Terminals

PHILADELPHIA, Pa.—To provide for increased demand for its products, the Atlantic Refining Co. will increase the storage capacity of its water terminals at Newark, N. J., New Haven, Conn., and Kettle Point (Providence), R. I. Docking facilities at Newark will also be enlarged. Two new all-welded steel storage tanks with a capacity of 1,120,000 gallons each will be erected at Newark. One new tank with a capacity of 750,000 gallons will be erected at New Haven, and one new tank with a capacity of 725,000 gallons at Kettle Point. The contract for the tanks has been awarded to the Chicago Bridge & Iron Co. Total cost of the increased storage and docking facilities will be in the neighborhood of $270,000.

British American Investigating Sites for New Large Refinery

CALGARY, Alberta.—F. A. Gaby, vice president of British American Oil Co., will investigate the various sites proposed for a new $1,000,000 refinery in southern Alberta, and report to the head office at Toronto after which a decision as to the location will be made by the company.

Tentative plans call for erection of a plant with a crude capacity of 5,000 bbls. daily, and sites in East Calgary and at High River and Okotoks are under consideration. British American now has refineries in Montreal, Toronto, Moose Jaw, Saskatchewan and Coutts, Alberta. The Coutts plant has been shut down since last November. The company also has a gasoline absorption plant in South Turner Valley which has a capacity of 80,000,000 feet of gas daily.

Martin Refinery in East Texas Field Shut Down

FORT WORTH, Tex.—Martin Refining Co. of Gladewater, Tex., has suspended operations and released its 5,000-bbl. plant to its owners, the Texas Oil Products Co. This is one of the last of the 22 independent refineries in the East Texas refinery district. About 200,000 gallons of gasoline per month has been marketed to trucks during the last quarter. It is claimed that the premium which East Texas crude commands has proved to be a serious handicap to the small refineries in that district.

Amerada Moves Offices to Tulsa

The land and geological departments of the Amerada Petroleum Corp. for Texas and New Mexico which since 1926 have been in Fort Worth, Tex., will be moved to Tulsa. Plans call for closing the Fort Worth office June 11. The production department will maintain a Fort Worth office. A. M. Blow, vice president and general manager, said it was desired to consolidate Mid-Continent operations at general headquarters.

Natural Gasoline

California Natural Gasoline Production Drops in April

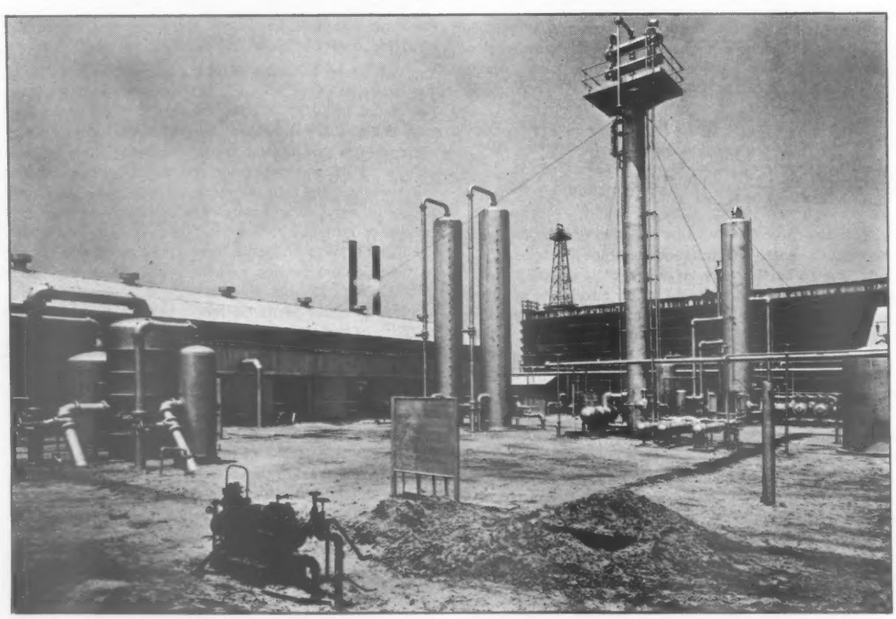
Production of natural gasoline in California decreased from a daily average of 45,000 bbls. in March to 42,000 bbls. in April, according to the monthly report of the San Francisco office of the Bureau of Mines. The decrease in production, however, was more than offset by the decline in refinery utilization so that total stocks on April 30 were 2,686,000 bbls. as compared with 2,549,000 bbls. at the first of the month. Daily average refinery utilization totaled 34,000 bbls. in April, or 2,000 bbls. less than in March. A summary of natural gasoline plant operations for the month is as follows:

Field—	Gas treated (thou. cu. ft.)	Natural gasoline produced (gallons)
San Joaquin Valley:		
Belridge	4,068,093	2,477,936
Elk Hills	54,443	119,247
Kettleman Hills	9,990,978	15,254,527
Midway-Sunset	1,092,589	2,202,286
Mountain View	441,926	570,025
Miscellaneous	1,036,753	628,143
Coastal district:		
Elwood	648,006	874,694
Rincon	163,068	228,828
Santa Maria	147,100	406,357
Ventura Avenue	3,126,254	4,526,252
Miscellaneous	495,539	475,882
Los Angeles Basin:		
Brea-Olinda Coyote	477,194	1,350,890
Dominguez	1,892,351	3,061,328
El Segundo	568,291	964,261
Huntington Beach	1,252,075	3,528,184
Inglewood	300,477	432,577
Long Beach	2,124,141	7,711,018
Montebello	323,528	426,438
Richfield	233,538	536,958
Rosecrans	431,112	796,199
Santa Fe Springs	1,917,787	5,378,667
Seal Beach	471,691	687,450
Torrance	127,947	309,858
Miscellaneous	993,782	2,416,827
Total (all fields)	32,378,663	55,364,832

(Distribution)

	(Gallons)	(Gallons)
Stocks beginning of month	2,174,174	
Production during month	55,364,832	
Delivered to refineries		54,724,735
Delivered to jobbers, brokers and blenders		355,644
Blended at plants for production of motor fuel		8,459
Losses		56,039
Stocks end of month		2,394,129
Total	57,539,006	57,539,006
Liquefied petroleum gas production	2,314,888	55,116
Motor fuel produced	9,815	234

CALIFORNIA GASOLINE PLANT MOVED IN RECORD TIME



General view of Ohio Oil Co.'s absorption plant at El Segundo, Calif. Formerly located at Venice, Calif., this plant was moved to its present site in one of the fastest operations of its kind on record, only 20 working days elapsing between shutdown time and resumption of production at the new location. Following relocation of the plant, the compressor station was transferred to the new site in 10 days.

Pipe Line Activity

Humble Preparing to Construct Outlet for Dailey Field

HOUSTON, Tex.—With a third producer extending the limits of the Navarro Crossing (Dailey) field in northwestern Houston County, a pipe line outlet is said to be assured by plans of Humble Oil & Refining Co.

Humble, largest leaseholder in the area which has two completions and another well drilling, is reported to be taking right of way easements for a line from the field to connect with its East Texas carrier in south Freestone County at a point north of Oakwood. The East Texas line connects with the company's Gulf Coast trunk farther west in Limestone County at a point south of Mexia. The company also is considering plans for the building of a field camp west of Grapeland.

Line From Buckeye to Bay City Or Toledo Projected by Sun

TOLEDO, Ohio.—Sun Oil Co. has under way plans for construction of a Michigan line from Buckeye to Bay City or possibly directly to Toledo. Several smaller pipe lines in the Michigan fields have been acquired by the Simrall Pipe Line Corp., a Standard subsidiary, and added to the Michigan-Toledo system which also opened a new 28-mile 8-inch line between Mount Pleasant and Crystal pumping stations.

Toledo now receives 22,000 bbls. of crude oil daily by pipe line from the Michigan fields and plans contemplate adding about 5,000 bbls. daily to this capacity.

Gasoline marketing pipe lines also are being constructed for broadening the market for the refined products.

Pure Oil Co. has a 6-inch gasoline pipe line to Detroit, and the Standard Oil Co. of Ohio has completed a similar line to Fostoria. Standard has asked the government for permission to lay two 6-inch lines across the Maumee River to connect the southern pipe lines with the new $500,000 lake terminal of the Shell Petroleum Corp. Shell in the meantime is laying a pipe line from its Wood River, Ill., refinery to Indianapolis and Lima and an extension from Lima to Fostoria will tie into the present line to Toledo. Later a 6-inch line will be built from Lima to Columbus.

Crude oil reaches Toledo by pipe line also from the Mid-Continent fields in Oklahoma and Texas.

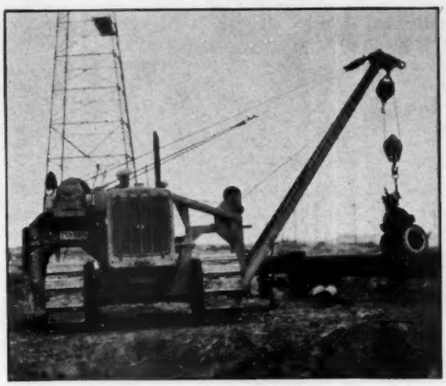
Andian National's Stockholders To Vote on Capital Reduction

Reduction of the capital of Andian National Corp., Ltd., from $25,500,000 to $10,200,000 is scheduled for action by stockholders at a meeting June 30. The company's pipe line system conveys crude oil of International Petroleum Co. from the interior of Colombia, South America, to the seacoast. In the event of approval of the reduction, an initial payment of $6 per share to stockholders on account of capital is planned, the notice to stockholders said.

The company which has general offices in Toronto, Canada, has outstanding 2,550,000 shares of capital stock, about 96 per cent of which was owned at the end of 1937 by Cordillera Investments, Ltd., a wholly owned subsidiary of International Petroleum, which in turn is controlled by Imperial Oil Co., Ltd., a subsidiary of Standard Oil Co. (New Jersey).

New Line Reveals Competition

MATTOON, Ill.—Announcement that a new pipe line will be laid into the Centralia field of southern Illinois indicates the competition for the new Illinois crude notwithstanding general overproduction of oil. The line, to be laid by Owensboro Pipe Line Co. for Standard Oil Co. of Ohio, will be a 6-inch carrier, to replace its present small lines from Centralia to Sandoval. This will provide an increased outlet for the field, which has been the "hot spot" of Illinois oil recently, principally because of the flush production nature of its development, especially the townlot drilling in Centralia.



Preparatory to moving a 12-inch gas line, this 12-inch gate-valve is being deposited right where it will be needed

Flag Lake Pool May Get Line

MABANK, Tex.—New interest has developed in the Flag Lake pool of northwestern Henderson County, about 9 miles southwest of Mabank, with the report that the Texas Co. is planning to connect the line with its main carrier somewhere near Kerens. The Texas Co. holds acreage in the new Woodbine sand pool and recently gave the pool a 1¼-mile southwest extension.

Northwestern Utilities Builds Extension of Its System

EDMONTON, Alberta.—Northwestern Utilities, Ltd., supplying natural gas to Edmonton from the Viking field, has started work on further extension of its duplicate transmission line from 5.3 miles east from West Salisbury, using 12¾-inch pipe. The cost is approximately $83,000. Other capital expenditures for additional plant and equipment in this year's program will approximate $50,000, with about $70,000 additional for maintenance work. The total capacity of the transmission system, now 1,289,800 feet an hour, will be increased to 1,351,300 feet by this year's extensions.

Phillips Lets Contract in Texas

A contract has been let by Phillips Petroleum Co. for constructing a 35-mile gas pipe line from Crane to Judkins, Tex. The company also will lay an oil pipe line from Goldsmith field to its new refinery at Judkins.

Arkansas-Louisiana to Build Line

SHREVEPORT, La.—Arkansas-Louisiana Gas Co. is planning to construct 18 miles of pipe line to supply gas for drilling, repressuring and other lease operations in the Schuler field of Union County, South Arkansas. Survey is being made for the line, which will tie into a high-pressure carrier, and laterals will be built to several leases. F. S. Kelly, company engineer, said the new line will relieve a deficiency in the field's gas supply.

Natural Gas News

Gas Quota Order for June Shows Growing Industrial Demand

AUSTIN, Tex.—How demand for natural gas in industry has grown is indicated in an order by the Texas Railroad Commission permitting the taking of 863,100,000 feet of sweet and sour gas daily during June. Little or no gas is used for fuel in June. The uses are for steam making and the carbon-black manufacture.

The commission will permit the taking daily of 135,111,000 feet of sweet gas from the East Panhandle field and 678,572,000 feet daily of sour gas from the West Panhandle field with 49,417,000 feet daily of sweet gas from the three levels in the Rodessa field.

At Rodessa the monthly total amounts to 839,190,000 feet from the Young-Dees sand, 526,290,000 feet from the Gloyd sand and 117,030,000 feet from the Hill sand.

Survey Begun for 18-Mile Line

SHREVEPORT, La.—Arkansas-Louisiana Gas Co. of Shreveport has begun survey work on a 6-inch 18-mile gas line to be laid from the Schuler field of Union County, Arkansas, to El Dorado. The line will supply gas in the field for drilling, repressuring, and general lease operation.

Gas Pressure in Turner Valley Dropping Half-Pound a Day

CALGARY, Alberta.—It is estimated that rock pressure in new wells in the south end of Turner Valley are dropping at the rate of approximately a half pound a day. Pressures in the entire field vary from less than 700 pounds in the older areas to over 1,750 pounds in the new.

Many of the new crude producers are running over 7,000 feet in depth and difficulty has been experienced in developing sufficient gas pressure to flow the oil in satisfactory quantities. Acidization usually increases the gas flow, but indications are that continued gas wastage ultimately will necessitate putting crude producers on the pump.

Commission Approves Transfer Of West Virginia Leases

CHARLESTON, W. Va.—The Public Service Commission has approved transfer of oil and gas leases in Doddridge, Monongalia and Lewis counties by the Hope Natural Gas Co. and the Pittsburgh & West Virginia Gas Co. Under the order, the Hope will transfer 78 acres in Doddridge and Monongalia counties to the Pittsburgh & West Virginia company. Hope in return will receive rights to 1,115 acres in Lewis County.

Industrial Gas Sales Decline

A summary by Paul Ryan, statistician of the American Gas Association, shows that natural gas sales for industrial purposes in March amounted to 48,475,600,000 feet, a decline of 18.3 per cent in comparison with the third month of 1937. However, natural gas sales for generating electric power amounted to 12,807,300,000 feet, an increase of 9.3 per cent.

Catching Tax-Evading Tourists

WOODSTOCK, New Brunswick.—With a view to checking the practice of New Brunswick motorists evading the provincial gasoline tax by making purchases in Maine, duty is being collected by Canadian customs on gasoline brought in by returning tourists. At border points a duty of 1 cent a gallon, plus 8 per cent sales tax, is imposed, the tourists later being billed for the 10 cents a gallon provincial gasoline tax.

Chase townsite oil field, Rice County, Kansas

Some Considerations of Close Spacing in Kansas

By E. A. STEPHENSON

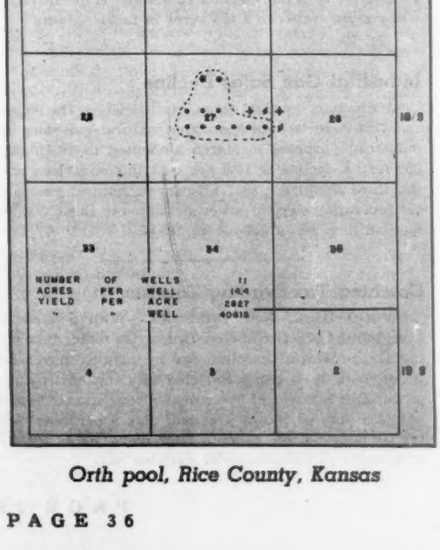
Head of the Department of Petroleum Engineering, University of Kansas

Any discussion of well spacing should be prefaced by reference to the excellent contributions already made to the problem by Pogue, Albertson, Oliver, Cheney, Knowlton, Foley, Hubbard, MacRoberts, and many earlier students.

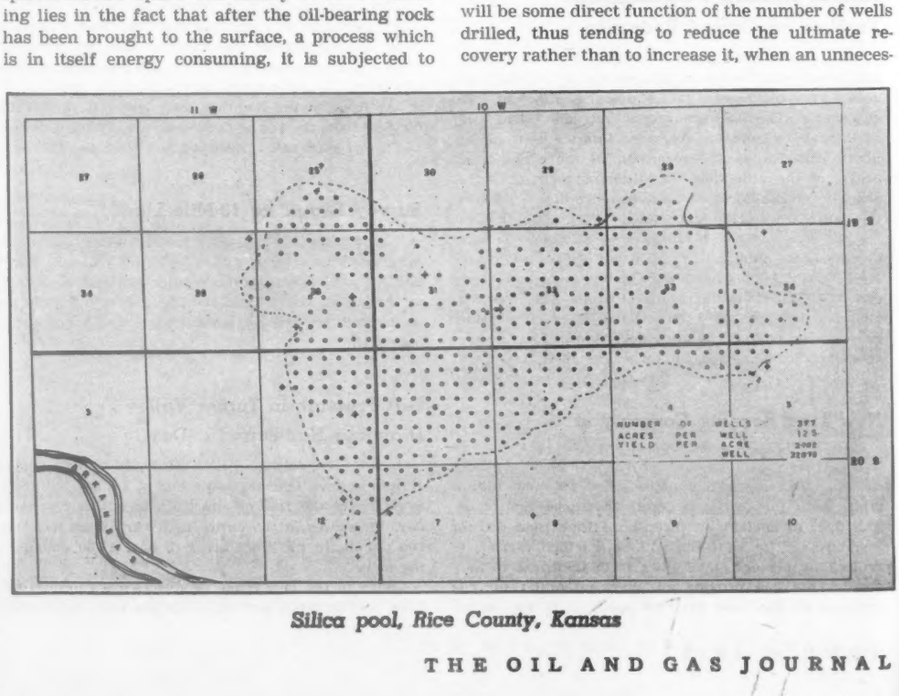
It would be most gratifying to be able to assure the oil and gas producers—particularly of Kansas—that a proposal is to be made which will guarantee a higher selling price for oil and gas, and at the same time a lower purchasing price to the consumer of refined products, that a reduction in operating expenses is to be anticipated, which will be accompanied by an increase in wages for all employes and officers, that the cost of drilling operations will decrease even though deeper drilling must be undertaken, and that a larger allowable per well can be promised even though it may be necessary to reduce the total allowable for the state. These and similar other miraculous events we might all desire or even be so foolish as to think they could be accomplished, unless fortune had favored us with at least a "part time course" in the school of experience, where it was discovered that certain inexorable conditions govern the exchange of commodities and services. For example, an increase in the cost of labor and of raw materials normally means an increase in the price of the finished products, deeper drilling is more expensive than shallow drilling, increased taxes means greater operating costs, operating costs cannot exceed the gross income and still leave a margin of profit, no business can continue long when its expenses exceed its income, whether that business be public or private.

Subject Not a New One

Discussion of the problem of well spacing is not a new subject, nor does the author pretend to have evolved a spacing formula which will apply to all fields, to all depths, and to all producing formations, and which will indicate the exact number of acres which should surround each well. On the contrary, the legal phraseology, whereby legislative fiat[1] has demanded that the "efficient . . . drainage area of a well" must be determined, has enveloped the engineer in shroulds of perplexity. He is even more bewildered when confronted with certain state regulations[2] which specify that *no* consideration may be given to the question of economics, while other states demand that consideration must[3] be given to "economic wastes"! Proponents of close spacing argue that since mining of oil bearing strata recovers all of the oil in the rocks, therefore drilling wells closer together will approach more nearly actual mining operations and hence recover more oil than if the wells are spaced farther apart. The fallacy of such reasoning lies in the fact that after the oil-bearing rock has been brought to the surface, a process which is in itself energy consuming, it is subjected to mechanical or chemical processes which consume further quantities of energy in various forms. The energies thus utilized can not similarly be made available to the reservoir by merely drilling additional holes in it. On the contrary, the amount of reservoir energy wasted, even under most efficient methods of drilling and production practice, will be some direct function of the number of wells drilled, thus tending to reduce the ultimate recovery rather than to increase it, when an unneces-



Orth pool, Rice County, Kansas



Silica pool, Rice County, Kansas

sary number of wells are drilled, or when the spacing pattern is needlessly close.

Speaking broadly, spacing programs may be classified most simply into two groups: (1) close spacing, and (2) wide spacing, without actually indicating the precise number of acres per well which mark the limits of either classification.

Close Spacing

(a) One of the reasons close spacing is the more common practice is that "everyone else has always drilled closely." The fact that nearly everyone else has drilled closely is historically true. It is far easier to follow a beaten path than it is to explore for and develop new routes. The convenience of the 10-acre unit made for its ready adoption in sectionized parts of the country, even though it is based on no sound engineering principles. A further fact which has prolonged the tradition of close spacing has been the ignorance of both landowners and many operators as to the quantity of oil and gas which can be present in rock of a certain thickness and porosity. Fortunately, most of the operators of today are much better

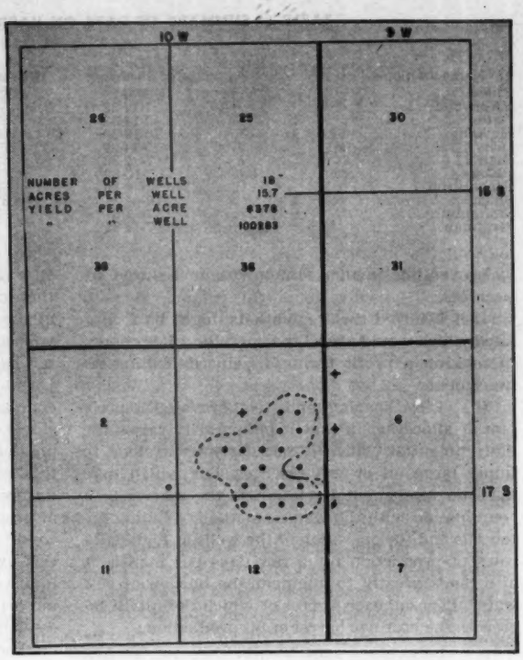
sequences Spacing Kansas

informed along this line, although the layman and the average landowner still need enlightenment.

(b) A second reason for close spacing has been the expectation that more oil would be produced from the acreage leased, or from adjacent properties by drainage, or that drainage from the lease would be prevented. Fundamentally these ideas originate in the expectation of profit, an incentive without which there would be no oil industry nor much of any other commerce in the entire world. Hence, the motive can scarcely be condemned. In fact, a basic assumption in the present discussion is that self-preservation demands that the various phases of the oil industry must each operate at a profit. The amount of profit needs to be such as to attract sufficient capital to enable that portion of the industry to perform its special service continuously and with stability. To ignore such economic considerations is to invite banqruptcy and disaster.

If this be the underlying urge back of a close spacing program, certainly the intimate relation between cost of development, annual yield per acre and per well, together with ultimate recovery, operating costs and selling price of the crude, etc., should be carefully considered, lest we go far astray in our search for the answer to this problem. Every dry hole and every unnecessary producer add to the cost of oil production. Since dry holes are more or less inevitable, the hope for profits, at a time when operating and development costs have already become burdensome, would appear to be through a reduction in capital expenditures for excessive drilling, which is a rational approach to the spacing problem.

(c) Where proration is practiced, a further incentive to close spacing is the desire to obtain higher allowables per lease. Unfortunately, the relation of spacing distances to allocation is partially dependent on our various state laws, rules of the regulatory bodies, popular demand, methods of well operation, etc., so that the author is somewhat reluctant to deal with this question. However, from the viewpoint of an engineer, it seems most unfortunate that attempts to regulate our flow of oil to meet the market demand should all start, even in proven fields, after the well has been completed.[4] The money for drilling has then been spent, the equipment has been purchased with which to produce and care for the oil until it reaches the pipe line. The regulatory body is then called upon to exercise its omniscience and solve the intricate problem of allocating the production of the new well, and adjusting the allocations of all the other new wells and pools. Even the engineers[5] have not yet reached complete agreement among themselves as to what are the best methods of accomplishing such Herculean tasks, especially after wells reach the pumping stage.



Stratman pool, Ellsworth County, Kansas

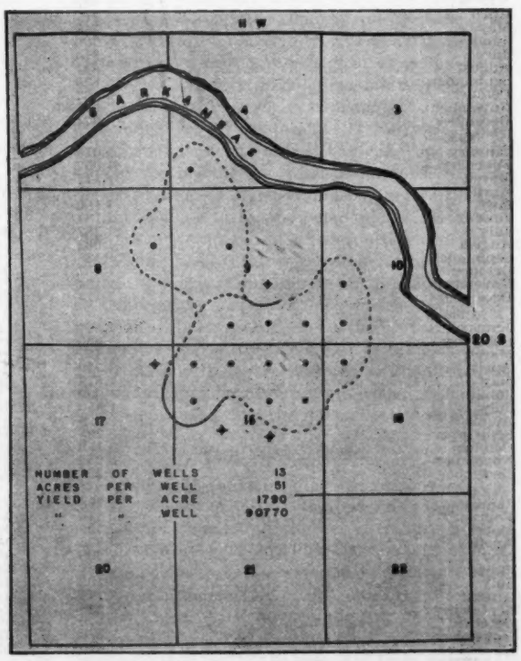
In Kansas the allowable production per well of the prorated wells appears to be an inverse function of the number of new completions, so that as the number of wells drilled in new fields rises the allowable production per well falls. Actually, proration affects an increasingly large number of wells, due to the fact that drilling activity is not confined to Kansas alone, but is even more feverish in the coastal areas than in Kansas or Oklahoma.

Another factor which contributes to the continued increase in the number of prorated wells is the fact that "potentials" occupy such a prominent place in allocation. Where some form of artificial lift must be employed, this type of allocation stimulates every producer to adopt the following procedure. He either installs such equipment for his potential test as will enable him to obtain a higher allowable, or he drills more wells on his prorated acreage, or he does both. It is rather an ironical caprice or Fate that both such devices have a tendency to aid the company which is financially strong and thus make it stronger, while the small operator, or the one with limited resources, is forced to keep pace, or try to do so, with the stronger competitor. Usually that means he must borrow more and more money—frequently at an increased rate of interest—and thus raise his fixed charges, and reduce his per cent of net earnings.

The recent pronouncement by Attorney-General McGraw,[6] of Texas, referring to a decision by the Appellate Court of Texas which granted a permit to drill on .53 of an acre in East Texas, stated that this opinion "will be the means of giving many farmers and small landowners an opportunity to share in the oil industry. It gives sanction to our opinion that every individual owner of a small tract has a right to its proper development." If the attorney had further explained that such a small tract could readily be included in a sound spacing unit, such remarks would have been much more in line with modern engineering.

But such an unqualified defense of close spacing ignores the rights of adjacent landowners and the public at large, which must pay the bills, and also loses sight completely of the viciousness of the repeated cycle of more wells, higher potentials, lower allowables. This cycle encourages the drilling of more wells so as to obtain greater potentials, which are followed by still lower allowables per well. Already the number of marginal wells has become so great that Sunday and Saturday shutdowns have been instituted in Texas. Since the marginal well is limited to a certain number of barrels per day, restriction of drilling seems to offer a sane method

***A.P.I.*—Presented at Mid-Year Meeting, Wichita, Kansas, May 25, 1938**



South Ellinwood pool, Barton County, Kansas

TABLE 1—SUMMARY OF DATA ON VARIOUS SILICEOUS LIME POOLS OF KANSAS WHICH ARE FIVE OR MORE YEARS OLD

Data as of January 1, 1938

Name of pool—	Date of discovery	No. of wells	Area, acres	Sand thickness (ft.)	Acres per well	Past production (bbls.)	Yield per acre (bbls.)	Yield per well (bbls.)
Chase	9- 4-29	229	3,571	38	15.6	15,143,473	4,240	66,128
Ellinwood	7-17-32	13	660	30	51	1,180,000	1,790	90,770
Gates	5-14-33	4	165	16	41	320,113	1,940	80,028
Heiken	10-10-30	4	69	21	17	280,980	4,072	70,245
Ochs	10-14-29	11	354	14	32.2	721,000	2,036	65,545
Orth	7- 7-32	11	158	(?)	14.4	446,765	2,827	40,615
Ploog	7-10-30	10	376	19	37.6	941,646	2,504	94,164
Richardson	2- 1-30	55	1,140	62	20.7	2,432,880	2,130	44,234
Silica	10- 4-31	377	5,035	19	12.5	12,093,655	2,402	32,078
Stoltenburg	7- 7-31	17	357	14	21	2,065,271	5,785	121,483
Stratman	7- 4-31	18	283	16	15.7	1,805,102	6,378	100,283

of preventing further shutdowns or reduced allowables.

It is believed that regulations might be formulated which would afford the operator a fair chance of making a profit through reduced drilling requirements.

(d) Close spacing tends to aggravate the problem of allocation in that it temporarily raises the daily potential, which is popularly understood to imply large oil or gas reserves, but which may have no fundamental relation to the reserves. In combination with the Kansas method of taking potentials and the operation of the wells at high daily rates of production for a few days per month, it also tends greatly to augment the burden of salt water disposal, each barrel of which definitely increases the cost per barrel of oil production.

(e) Laboratory experiments have not yet furnished conclusive data as to a correct spacing program, and though such results as have been secured are of great technical importance, they are not applicable to all fields, all kinds of sands, or all types of reservoirs. Both laboratory and theoretical studies have shown that very wide spacing programs for gas fields[7] will give practically as high ultimate recoveries as the most intensive close spacing. Comparable studies as to oil pools are not yet available, hence the tendency is to adhere to old plans.

(f) Field experiments may, at first thought, appear most baffling, due to the fact that the same tract can not be developed with more than one spacing program. If a wide spacing plan is adopted, then one with close spacing can not be instituted at the same time and place while identical reservoir conditions prevail. Actually such a study may not be as hopeless as it first appears, provided adjacent tracts with different spacing programs be compared in enough instances. Comparing but a single pair of programs would mean little, due to possible variations in permeability, porosity, pay thickness, geologic structure, reservoir pressure differences, etc., but if a great many such pairs of programs were studied, where similar reservoir conditions exist,[8] some light should be shed upon this extremely important question. Thus far, the industry seems to have been unable to do this, due in part to lease obligations, state laws, special concessions to irregularly shaped tracts, different methods of operation and the fact that, except for a few isolated cases, oil and gas production has had the "right of way" over field experiments to such a great extent that the experimental method applied to similar fields, or similar tracts in the same field, has been almost neglected.

A by-product of the current close spacing idea —which is practically the same idea that prevailed 70 years ago when virtually nothing was known about the physics and chemistry of the hydrocarbons, of reservoir energy, fluid flow and other engineering concepts—is that it prolongs the inauguration of experimental investigations of different spacing programs. The few attempts which have been made to ascertain the results of wider spacing plans are so small in number and the other variables so numerous that conclusions must be drawn cautiously. Comprehensive data from many fields should be compiled, organized, and critically studied in the search for this needed solution.

The suggestion made by Bays,[9] and Cheney,[9a] that appropriations might wisely be made to finance the study of unrecovered oil in various fields, with a view to development of sound spacing programs is also an excellent one and is revived for your consideration at this time.

Economic Aspects
Data From Siliceous Lime Pools

In an effort to obtain some kind of tangible answer to this question, a number of Kansas pools —particularly those producing from the Siliceous limestone—have been studied. Pools producing for at least five years were selected, more or less at random, and the statistical data for these pools are shown in Table 1.[10] While the results obtained are not absolutely convincing as to what is the best spacing program in Siliceous lime areas, they do show some significant facts. For example, Silica, the largest pool (37 per cent of whose wells were completed in 1936 and 46 per cent in 1937), with an apparent drainage area of 12.5 acres per well, but a definite 10-acre spacing, has produced on the average but 2,402 bbls. per acre, or 32,058 bbls. per well. Orth, with 14.4 acres per well and 2,837 bbls. per acre, is a borderline case, either from the viewpoint of acre yield or recovery per well.

TABLE 2—STATE OF KANSAS DAILY AVERAGE PRODUCTION BY MONTHS

	Prorated wells			Minimum wells			Total all wells		
	Number of wells	Total daily production	Av. daily production per well	Number of wells	Total daily production	Av. daily production per well	Number of wells	Total daily production	Av. daily production per well
1934—									
January	622	47,699	77	18,740	60,999	3.3	19,362	108,698	5.61
February	640	50,803	79	18,664	62,266	3.3	19,304	113,069	5.94
March	682	65,091	95	18,654	62,619	3.4	19,336	127,710	6.60
April	711	68,625	97	18,669	62,577	3.4	19,380	131,202	6.77
May	745	68,501	92	18,557	63,223	3.4	19,302	131,724	6.82
June	769	69,208	90	18,584	63,967	3.4	19,353	133,175	6.88
July	814	72,527	89	18,605	60,344	3.2	19,419	132,871	6.84
August	841	67,931	81	18,616	59,884	3.2	19,457	127,815	6.56
September	830	62,008	75	18,650	57,793	3.0	19,480	119,801	6.14
October	857	64,074	75	18,650	59,737	3.2	19,507	123,811	6.35
November	935	69,206	74	18,594	54,563	2.9	19,529	123,769	6.33
December	974	73,394	75	18,594	52,798	2.8	19,568	126,192	6.44
1935—									
January	1,014	83,714	83	18,579	51,219	2.8	19,593	134,933	6.89
February	1,057	92,767	88	18,538	53,364	2.9	19,595	146,131	7.45
March	1,127	97,463	86	18,533	51,971	2.8	19,660	149,434	7.60
April	1,175	92,285	79	18,536	53,842	2.9	19,711	146,127	7.41
May	1,180	98,140	83	18,549	51,030	2.8	19,729	149,170	7.26
June	1,184	97,009	82	18,552	52,771	2.8	19,736	149,780	7.58
July	1,282	101,215	79	18,550	51,785	2.8	19,832	153,000	7.71
August	1,362	93,926	69	18,578	50,443	2.7	19,940	144,369	7.24
September	1,435	98,668	69	18,541	48,485	2.6	19,976	147,153	7.36
October	1,457	102,854	71	18,560	48,656	2.6	20,017	151,510	7.56
November	1,454	95,086	65	18,647	47,647	2.6	20,101	142,733	7.10
December	1,514	92,656	61	18,613	47,328	2.5	20,127	139,984	6.95
1936—									
January	1,594	94,888	59	18,725	44,233	2.4	20,319	139,121	6.84
February	1,650	97,912	59	18,749	39,439	2.1	20,399	137,351	6.73
March	1,777	103,304	58	18,748	48,205	2.6	20,525	151,509	7.37
April	1,779	110,333	62	18,848	49,094	2.6	20,627	159,427	7.72
May	1,872	104,007	56	18,853	49,640	2.5	20,725	153,647	7.41
June	1,990	98,857	50	18,876	50,854	2.7	20,866	149,711	7.17
July	1,950	106,506	55	19,020	49,632	2.6	20,970	156,138	7.44
August	2,099	117,856	56	18,735	48,567	2.6	20,834	166,423	7.98
September	2,205	116,029	53	18,720	48,415	2.6	20,925	164,444	7.85
October	2,189	106,384	49	18,832	54,883	2.9	21,021	161,267	7.67
November	2,256	112,767	50	18,881	48,102	2.5	21,137	160,869	7.61
December	2,283	123,448	54	18,848	46,255	2.5	21,131	169,703	8.03
1937—									
January	2,288	120,498	52.6	18,892	46,276	2.4	21,180	166,774	7.87
February	2,448	137,087	56.0	18,836	49,583	2.6	21,284	186,670	8.76
March	2,599	141,590	54.5	18,812	48,492	2.6	21,411	190,082	8.87
April	2,822	145,029	51.4	18,742	51,463	2.7	21,564	196,492	9.11
May	2,899	152,747	52.7	17,734	49,315	2.8	20,633	202,062	9.80
June	2,961	147,729	49.9	17,799	51,220	2.9	20,760	198,949	9.58
July	3,103	152,536	49.2	17,194	49,375	2.9	20,297	201,911	9.95
August	3,146	143,502	45.6	17,906	50,081	2.8	21,052	193,583	9.20
September	3,133	142,525	45.5	18,063	52,396	2.9	21,196	194,921	9.19
October	3,176	137,436	43.3	17,425	50,318	2.9	20,601	187,754	9.11
November	3,326	126,843	38.1	17,354	51,570	3.0	20,680	178,413	8.62
December	3,470	123,843	35.6	17,238	50,783	2.95	20,708	174,626	8.43
1938—									
January	3,286	127,117	38.7	17,466	50,591	2.9	20,752	177,708	8.56
February	3,331	113,587	34	17,476	53,042	3.0	20,807	166,610	8.0

However, borderline cases should be viewed in the class of excessively close spacing. Ochs, Ploog, Gates, Richardson, and Ellinwood, with 32, 37, 41, 20.7, and 51-acre spacing respectively, are evidently on too wide a pattern, if no consideration be given to the pay thickness; (satisfactory data of this character could not be secured.) The recoveries at Chase, Heiken, Stratman, and Stoltenbberg are close to 4,000 bbls. per acre or more, which is at least 50 per cent more than the closely spaced pools. From that standpoint alone, they seem to approach something like a reasonable spacing program, which happens to fall somewhere between 15 and 21 acres per well.

If the yields are expressed in barrels per well, the results should be examined from the standpoint of well decline, net production rather than gross production, operating costs, development costs, amortization needs, etc. In order to obtain the kind of answer an engineer desires in a problem of this sort, it is necessary to know the annual production per well for each well. The importance of data relative to the number of years each well has been producing is also recognized, as well as the fact that such complete data might modify the conclusions, especially when comparisons of ultimate yield per well or per acre are made, and no other facts are examined. However, new completions in the Siliceous lime area have been most numerous since 1935, and hence the variation in the average age of the wells in the different pools is much less significant than casual observation would indicate.

Current Development Trends

In view of the preceding discussion, a study has been made of the current trends in number of well completions, number of prorated wells and daily allowables per well. The analyses of these trends must be approximately correct if any sound conclusions are to be based thereon. (See Figure 12 and Table 2.)

The upper graph shows the number of prorated wells in Kansas since the end of 1933. This graph may be expressed mathematically by the equation

$$1.535^{n}a = N \qquad (1)$$

where n = number of years since December 31, 1933
a = number of prorated wells as of December 31, 1933
N = number of prorated wells at end of any period, represented by n.

For example, since a = 622, the number of prorated wells at the end of 1933, the number at the end of 1937 = 1.535 × 622 = 3452.

Similarly, the lower graph on Figure 12 shows the allowable per prorated well during the same four-year period. This graph may also be expressed by an equation of the same type:

$$.80^{n}k = A \qquad (2)$$

where n = number of years since the end of 1934
k = number of prorated wells at end of 1934
A = allowable per well at the end of any period represented by n.

Table 3 shows a comparison of the actual data with that calculated for each period.

The question will naturally arise as to whether or not the trends of the past four years will continue and for how long. In so far as can be discerned, no potent factor, other than the depression, is at work which will retard development programs now under way, while three factors will probably operate to maintain the current trend or even accelerate it.

1. Lease expirations of 1939-1940 call for development or surrender. If not drilled by present lessees, little doubt can be entertained as to the probability that they will be drilled by some other person—and you have probably observed that in a recent decision of the Supreme Court, it was held that a corporation is a person in the light of the law—one lone justice dissenting from the otherwise unanimous opinion.

2. The continued use of potentials either as the basic or dominant factor in allocation will tend to promote close drilling in proven territory, thus increasing the number of prorated wells and reducing the average allowable per well, unless an expanded market should materialize.

3. The more or less stabilized price level for crude which has accompanied proration appears to have lulled us into a false sense of price security. This false security ignores the consequences of excessive drilling and the necessity for an intelligent spacing program.

TABLE 3—COMPARISON BETWEEN ACTUAL AND CALCULATED NUMBERS OF PRORATED WELLS AND THEIR ALLOWABLES IN KANSAS

End of year—	Actual number of prorated wells	Calculated number of prorated wells	Per cent difference	Actual allowable per prorated well	Calculated allowable per prorated well	Per cent difference
1933	622	622	...	77	...	...
1934	974	954	—2.03	75	75	...
1935	1,514	1,461	—3.5	61	60	—1.7
1936	2,283	2,251	—1.4	54	48	—11.1
1937	3,470	3,452	— .5	35.6	38	+6.7
1938	....	5,298	...	...	31	...
1939	....	8,135	...	...	24.5	...
1940	....	12,533	...	...	19.7	...

Development and Operating Expenses

For the average independent company in Kansas, operating over a long period of time, if the total number of wells drilled be placed at 100 per cent, the productive holes approximate 87 per cent and the dry holes 13 per cent. The cost of development and operation may be expressed as percentages of the selling price of oil, using $1.25 as 100 per cent. These data are shown in Table 4.

TABLE 4—ESTIMATED YEARLY COST OF OPERATIONS IN KANSAS

Based on $1.25 = 100 per cent

	Per cent
Drilling and equipment:	
Oil wells	59.2
Dry holes	5.2
Operating	22.3
Royalty	12.5
Bonuses and rentals	5.3
Overhead	3.0
Miscellaneous	0.5
Total	108.0=$1.35

Note: These figures do not include interest on the original investment, but represent the cash cost of oil produced for the year 1937.

The table does not include anything for depreciation, an item which should be applied to all of the wells operated by an average company in Kansas. The method of computing the cost per gross barrel of oil produced during the year 1937 is similar to that described by Hubbard in his study of well spacing in Texas[11]; these are figured on a cash basis and represent the annual outlay such an average company makes for the purpose of maintaining its production, even though its rate of production may have diminished, as was the case for many companies in 1937. The expenditures for drilling actually amounted to many million dollars, a considerable portion of which could have been avoided by means of a spacing program based on engineering studies, instead of on the urge for higher potentials. How long can the industry continue to operate, explore for new reserves, and still pursue a drilling program which of itself is largely responsible for the decline in allowable per well?

Allowables and Earnings

The trends of prorated wells and allowables of Table 3 serve as a basis for the computation of the expected earnings or losses from drilling operations. These are partially dependent on the amortization programs, which in turn are closely related to the hazards of the oil industry. In Table 5 are shown typical amortization schedules at 60 cents per barrel, starting in the years 1935-36 and 37, and extended through 1940. Since completed wells, plus necessary lease equipment cost about $40,000 a well which was completed early in 1935 and which produced a total of 60,000 bbls. during its first three years has a good chance to pay out in five and one-half years; one completed early in 1936 has very small chance of a pay-out during its first five years, while one completed in 1937 is practically certain to not pay out in a five-year period, if it ever does. If less than 60 cents per barrel is used for amortization, the pay-out time is even more prolonged; if more than 60 cents per barrel is used, which is necessary for some companies, the total cost of maintaining production at the declining allowables exceeds the gross income per barrel.

If it be assumed that a company can operate with a 60-cent per barrel amortization rate, which is obviously such a conservative one that it should be regarded as a minimum, the other costs will approximate 10 cents for dry holes, 30 cents for operating and taxes, 7 cents for bonuses and rentals, 14 cents for interest, and 3 cents for office expense, with a total of $1.24 per barrel. This leaves a margin of 1 cent for geological or geophysical exploration, on an ultra-conservative basis, which means that under such circumstances the incentive to drill for oil has practically vanished. Since it has already been shown that close spacing is largely responsible for these conditions, the rational solution is obvious indeed, unless drastic cuts in wages, salaries and personnel be advocated. The latter would be an unwise procedure, especially since labor is not responsible for the trouble. Should the orgy of drilling on small spacing units be temporarily suspended, due to the severe depression which now engulfs us, the prevailing conditions will repeat themselves, if drilling on small tracts is revived. The results will be manifested in a greater number of prorated wells, with even lower allowables than the present study indicates.

Proposed Solution

In view of the preceding discussion and the unhealthy economic situation which it portrays, not only in Kansas, but in other states, it is hereby urged that serious consideration be given to a wider spacing program. This should have the attention of the oil and gas producers, the landowners, regulatory bodies, the legislatures and state executives. The plea that close spacing should be encouraged can not be defended from the standpoint of conservation, public or private interest,

TABLE 5—RELATION OF GROSS AND NET PRODUCTION TO AMORTIZATION OF WELL COSTS

Year	Average allowable (bbls. per well per day)	Yearly gross bbls. per well	Net or ⅞ of gross bbls. per well per year	Amortization at 60 cents per net bbl.		
1935	76	25,730	22,530	$13,550	.....	.....
1936	54	19,440	17,030	10,250	10,250	.....
1937	43	15,490	13,560	8,140	8,140	8,140
1938	34.5	12,420	10,880	6,530	6,530	6,530
1939	27.75	9,980	8,740	5,240	5,240	5,240
1940	22.1	7,960	6,970	4,180	4,180	4,180
Total	....	91,020	79,710	$47,890	$34,340	$24,090

ultimate recovery, sound business practice, protection of the small landowner, or any other valid reason. In fact, the small farmer or landowner actually appears to be penalized by it, in that dense spacing is almost invariably accompanied by such a waste of reservoir energy as to greatly reduce the amount of oil ultimately recovered from each acre of land.

Wide Spacing

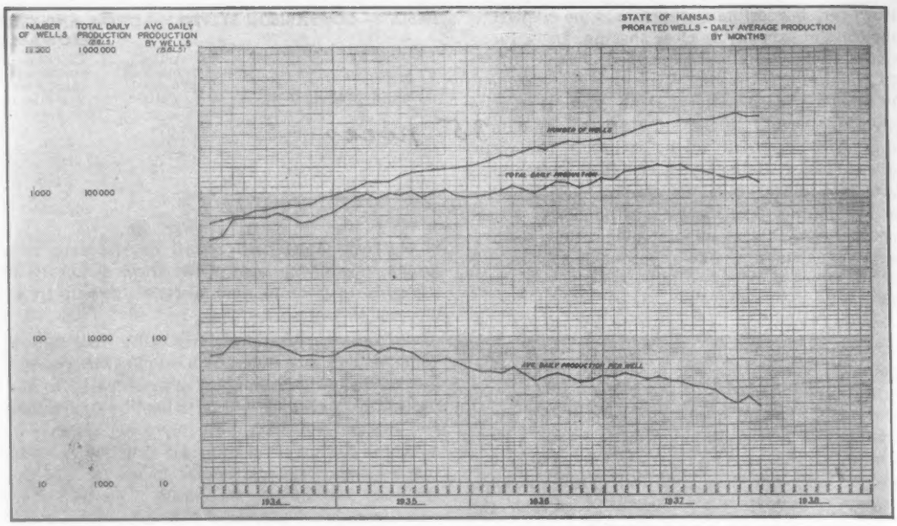
The wider spacing program is recommended for the following reasons:

1. Close spacing has been shown to be largely responsible for the present disequilibrium between capacity to produce and market outlet.
2. The capital expenditure for wide spacing will be much less per acre developed, and will approximate 50 per cent of the present cost on the basis of one well to 15 or 20 acres.
3. The fixed charges for interest, amortization, etc., will be less.
4. The daily allowable per well will be greater as soon as the wells now completed have declined sufficiently.
5. The operating costs both gross and per barrel will be less.
6. The dissipation of reservoir energy will be reduced.
7. The volume of salt water handled should diminish, if close spacing is eliminated and the present method of taking potentials abandoned.
8. Part of the funds now used for intensive drilling will be available for the necessary wildcatting and discovery of new pools.
9. On the basis of present limited study it appears that the recovery per acre is at least as great or greater than with close spacing.

Finally, the merits of unit operation. community development corporations, or similar programs should be disseminated as widely as possible, and legislative support for these projects and for sound spacing rules advocated. If potentials are to be used as a basis for allocation, such restrictions should be placed on the methods used in taking them as will prevent premature salt water encroachment and damage to the producing strata. It would be far better, however, to institute proration prior to the drilling, rather than after the well is completed. These objectives are believed to be sound from an economic and engineering standpoint and have as their only purpose the reestablishment of the industry on a firm basis. Such an objective concerns every operator in the state, whether he be a major or minor, big or little. Fundamentally, the major companies need the independents, and the independents need the majors. Wise leadership on the part of both groups will readily recognize this fact and seek mutual cooperation.

The following quotation from Northcutt Ely[12], is particularly apropos in this connection:

"The petroleum industry is one of the largest going concerns on the face of this earth. So also in his time, many ages ago, was the dinosaur. A characteristic of the prehistoric monster was the simplicity of his nervous system. It is said that these animals probably never knew the meaning of fear, except in the form of a paroxysm of terror; that they went contentedly about their business, whether, depending on the nature of the beast, it was the business of chewing tree tops or the business of digesting their smaller neighbors; that they lacked all capacity to worry about the past or the future, but were capable of breaking into violent activity to escape impending danger. Ultimately there were no more dinosaurs. The nervous system that was capable of convulsing huge pieces of machinery into violent activity, but was incapable of remembering the past or planning for the future, did not survive. If we take only spasmodic interest in the wise use of our huge but diminishing oil resources, it is likely that selfish interests, political and otherwise, will eventually capture the oil industry just as the ants ate the dinosaurs."



Trends of production under proration in Kansas

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Obituaries

M. H. SMITH, 60, retired drilling contractor, died in Shreveport, La., June 1.

W. D. FREEMAN, 73, one of the first operators in the Mexia, Tex., field, died in that city May 30. He had served as city commissioner.

GORDON CAMPBELL, 64, whose discovery well in Devil's Basin started development of the Roundup, Mont., area, died in Kevin, Mont., May 31.

THOMAS D. DAVIES, formerly assistant to the vice president of the National Tube Co., died May 28 in McKeesport, Pa. For years he was chairman of the pipe manufacturers' subcommittee of the A.P.I.

FRANK L. MAIRE, 68, oil producer in Kansas, Oklahoma, and Michigan, died of a heart attack while driving from his home in Lima, Ohio, to Tulsa. He became interested in oil in Titusville, Pa., and went to Lima shortly after the opening of that field 40 years ago. He became president of the old National City Bank. He was active in organization of the Lily White Oil Co., of which he was president.

Lone Star Gas Rate Case Back In Court of Civil Appeals

AUSTIN, Tex.—The Lone Star Gas Corp. case, involving the question of rates, is back in the hands of the Third Court of Civil Appeals, from which it had been taken to the Supreme Court of the United States. The higher court remanded the case for such further action as might not be inconsistent with the supreme court's own decision.

The Texas Railroad Commission had issued an order fixing 32 cents per 1,000 feet as the maximum gas rate to be charged. The company appealed to the Travis County District Court and contended that its properties were worth much more than the value put on them by the railroad commission and made the basis of its rate order. The state offered nothing more in the way of evidence than the order of the commission. There was submitted to the jury, as a special issue the question whether the evidence presented did or did not show that the 32-cent rate would be confiscatory. The jury decided it did, and the court enjoined the commission from enforcing its order.

The Third Court of Civil Appeals dissolved the injunction alleging the evidence presented to the jury did not overcome the presumption of fairness and reasonableness which the law requires courts to accord to rates made by the commission. The gas company, it said, had failed to make "a proper segregation of interstate and intrastate properties and business." To this, the U. S. Supreme Court has answered that since the commission had treated the company's properties as an integrated system, it was under no obligation to make that segregation, though under compulsion of the trial court it had undertaken to do so, and that therefore the Court of Civil Appeals had erred.

Oil Scouts Yearbook Is Asset In Membership Campaign

The 1938 yearbook of the National Oil Scouts Association, published in May, already has proven a distinct asset in the membership campaign that began following the recent convention in Tulsa. Each member is entitled to a copy of the yearbook, and as it is an invaluable reference work for scouts and others following oil field developments it has been a deciding factor in persuading many stray scouts to join.

The membership has increased considerably since the convention, according to Lee A. Adams, president of the association and scout for Sinclair Prairie Oil Co. in the Oklahoma City district. There now are 872 members, an all-time high for the association, and at the rate new members are being enrolled it is believed the campaign goal of 1,500 may be reached this summer.

The 1938 yearbook, containing statistics and information regarding 18 oil-producing states, was edited by M. R. Alexander, of Oklahoma City, and prepared for publication under supervision of Mr. Adams.

ENGINEERING and OPERATING

In This Issue

STAGE SEPARATION AND RECYCLING OF GAS-DISTILLATE WELLS
By Mitchell Tucker ..... *Page 42*

Mechanical and technical aspects of producing and regulating combination wells, and their legal status are receiving a great deal of study at present in East Texas and North Louisiana. Here gas conservation laws regulating their flow are discussed and several different types of plants built to recycle the residue gas briefly described, including Tide Water-Seaboard's installation in Cayuga field of East Texas.

PROGRESS IN METALS—*By W. L. Nelson* ..... *Page 46*

Metals for low temperatures. Metallurgical terms—annealing. High strength oil-field rotary chain. New research laboratory.

OPERATING IDEAS ..... *Page 49*

Combination pipe cradle and water preheater offers convenient means of transporting loose pipe. Washing machine cuts pipe line station expense for oil rags. Device for the electrical ignition of tank battery or lease flares. Header on christmastree of high-pressure well.

HIGH-OCTANE GASOLINE OBTAINED BY CATALYTIC DEHYDROGENATION
By V. L. Karzhev, M. G. Sever'yanova and A. N. Siova ..... *Page 50*

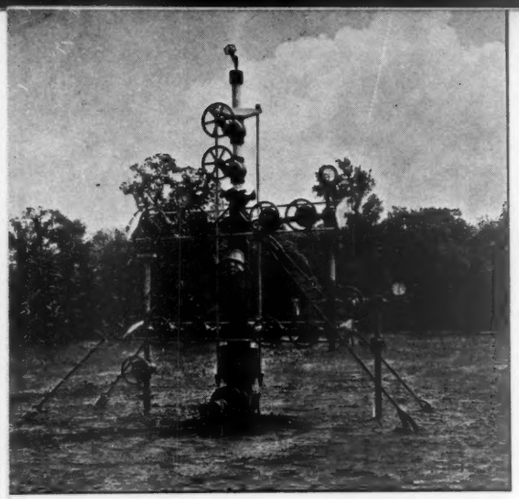
Previous investigations have shown that chromium oxide is the most active catalyst in the dehydrogenation and isomerization of organic compounds. Results of a study undertaken to test the effectiveness of the reaction of catalytic dehydrogenation in the presence of chromium catalysts using tetralin and decalin are discussed here by the authors. Also described is their work on the conversion of paraffin hydrocarbons into aromatics using decane, iso-decane and normal heptane.

EXPERIMENTS ON FLUID CAPACITY AND PLUGGING OF SCREENS
By R. L. Chenault ..... *Page 54*

A series of tests on fluid capacities and plugging of oil-well screens was undertaken by the author to determine the relative merits of various types of screens commonly used. These included tests on free-flow characteristics, flow characteristics when packed in sand, conditions under which screens are likely to plug, and precautions necessary to prevent plugging. Methods now being used for placing gravel or sand-packs are also discussed and some new methods suggested.

PROBLEMS FROM READERS—*By L. G. E. Bignell* ..... *Page 63*

QUESTIONS ON TECHNOLOGY—*By C. K. Francis, Ph. D.* ..... *Page 64*



Stage Separation of Combination

Fig. 1—Well head at one of the two 7,500-foot Trinity combination wells in the Cayuga field, having a casing pressure of 3,000 pounds. Gas from this well is run through separator and reintroduced into the producing Woodbine formation

The legal, mechanical and technical aspects of producing and regulating so-called "gas-distillate" wells constitutes the basis for a great deal of study and experimentation in Eastern Texas, North Louisiana and the Gulf Coast at the present time. The newly developed process which effects a thorough stripping of the high gravity liquid from the wet gas by stage separation, and then reintroduces the residue back into the formation from which it came at heretofore unworkable pressures, is being tried in two fields at this time. Both installations are still in more or less the experimental stage, but very satisfactory tentative results have been reported. A rapid extension of the practice is in sight over the next few months in many of the deep high pressure and temperature reservoirs which produce only a wet gas.

Perhaps no one phase of the petroleum industry lacks for adequate terminology so badly as the present so-called "gas-distillate" wells. To the operators themselves, they are called distillate or condensate wells, white oil wells, or rock oil wells. To the Railroad Commission of Texas and Louisiana Department of Conservation they are considered as gas wells and regulated as such. To the U. S. Bureau of Mines they are combination wells or liquid hydrocarbon wells. To the United States District Court they are wells, which . . . "when run through a choke and turned into a separator provided with baffle plates, a water white liquid is precipitated and saved." Perhaps the name employed by the U. S. Bureau of Mines is more properly chosen, and their terminology will be used for the purpose of this discussion.

Legal Aspects

The legal aspect of this problem in Texas resolves around whether or not combination wells are gas or oil wells as defined by the statutes of that state. The mechanical and technical problems are largely those incident to converting the greatest percentage of wet gas into a stable liquid phase through stage separation and temperature changes, then boosting the residue gas up to the necessary point and recycling it back into the high pressure formation from which it was produced.

Construction on the first plant of this kind was begun about 10 months ago by the Parker, Foran and Knode engineering firm of Austin, Tex., for the Process Oil Co. in the Agua Dulce field near Corpus Christi on the Gulf Coast. The second plant, embodying somewhat different methods of effecting separation and condensation, was placed in operation about 60 days ago by Tide Water-Seaboard Associated companies in the Cayuga field in Eastern Texas. Jack Vaughn designed and supervised the installation of this plant.

At the present time there are over 25 so-called "gas-distillate" fields in Texas and Louisiana which produce a wet gas at high pressure and temperatures. Several of them are proven over several thousand acres, but are undeveloped and practically shut in because of no market outlet for their residue gas. The ability to recycle the residue back into the formation is offering much encouragement to lease holders in such fields, as this process satisfies all requirements of either Texas or Louisiana statutes. Hence, the construction of a large number of stage separation and recycling plants is seen for the immediate future.

Texas Gas Conservation Law

In considering the legal aspects of this problem in Texas, a review of certain portions of house bill 266, the Texas gas well conservation law, is desirable. Brief portions of the sections pertaining to this problem are as follows:

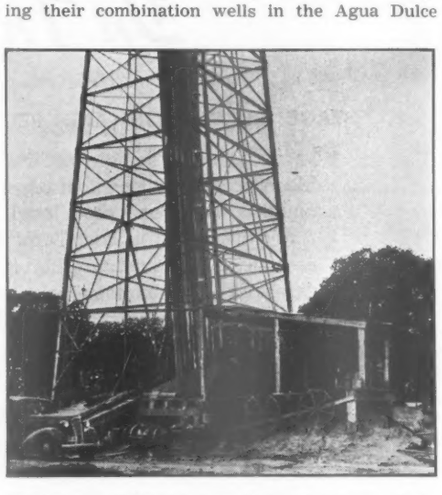
Section 15: "In all common reservoirs producing both sweet and sour gas, no gas well shall be permitted to produce in excess of 25 per cent of its daily productive capacity."

Section 2, (d): "The term 'gas well' is any well (a) which produces natural gas not associated or blended with crude petroleum oil at the time of production, or (b) which produces more than 100,000 feet of natural gas to each barrel of crude petroleum from the same producing horizon."

Section 3 declares that any form of gas waste is unlawful, and lists as one form of waste as "(k) permitting any natural gas produced from a gas well to escape into the air before or after such gas has been processed in a gasoline plant." (Note: Gas produced with an oil well may be burned or allowed to escape into the air if necessary.)

Section 7 . . . . "No sweet gas shall be utilized except for (c) bona fide introduction of gas into oil or gas bearing horizons in order to maintain or increase the rock pressure or otherwise increase the ultimate recovery of oil or gas from such horizon. . . . or (d) the extraction of natural gasoline therefrom when the residue is returned to the horizon from which it is produced."

The U. S. District Court, Austin district, was called upon to interpret these portions of this statute in the famous case, Clymore Production Co. and others versus E. O. Thompson and others (D.D.) 11 F. Supp. 791, wherein complainant sought to obtain a permanent injunction against the railroad commission prohibiting them from classifying their combination wells in the Agua Dulce

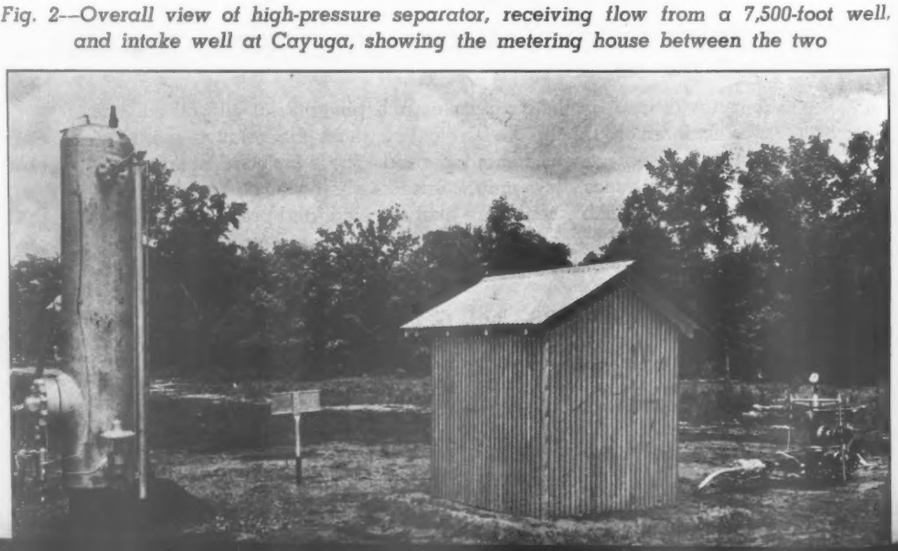


Drilling a 5,250-foot well in the Long Lake field, to be used solely as an imput well in Byrd-Frost's stage separation and recycling project now under construction

field as gas wells. At that time the Clymore company was operating a gasoline plant in the field, processing the high pressure gas from the 4,800-foot level, and venting the residue gas into the air. This practice would have been legal had the wells been classified as oil wells, and illegal if classed as gas wells, as the commission called them.

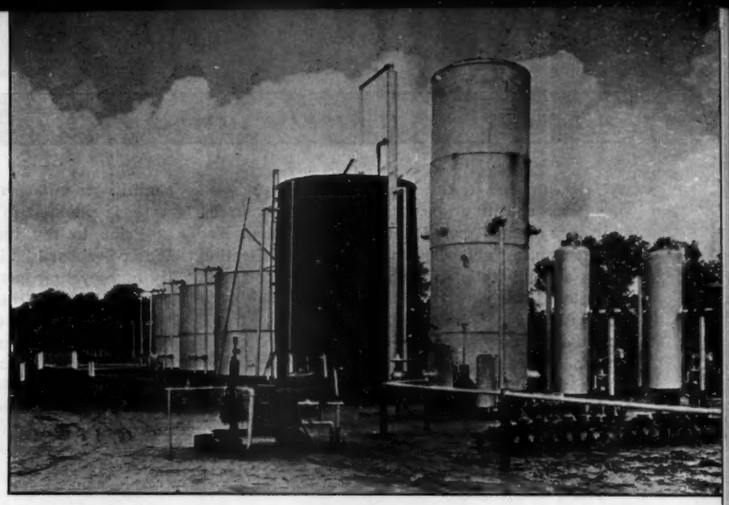
The lower court denied the injunction, and the case was taken to the three-judge appellate court, who affirmed judgment of the lower court. In as much as their decision is today the final opinion on this important legal point, there seems to be

Fig. 2—Overall view of high-pressure separator, receiving flow from a 7,500-foot well, and intake well at Cayuga, showing the metering house between the two



and Recycling Wells

By MITCHELL TUCKER



Separation, treating, and oil storage battery in the Cayuga field of eastern Texas where a recycling project is under way

justification to quote certain significant portions of the opinion.

"Complainant's right to relief hinges entirely upon the question of whether these wells are oil or gas wells. Their contention that they are oil wells is apparently based entirely on the fact that in a separator connected to a choke certain water-white liquid is accumulated which upon analysis shows to contain various hydrocarbon components characteristic of crude oil.

"The gauging of this liquid is the only thing that could in any possible way be claimed to classify the well as an oil well. They are not drilled or produced as oil wells; there is nothing to indicate any fluid level in the formation, or any fluid column in the tubing when the wells are closed down; pressures as between the tubing and the casing gives no indication; the wells do not flow by heads when reopened, nor is there any visible or perceptible liquid given forth at that time. When the wells are opened into the air, what is apparently a gas is produced, and though a small amount of moisture may be accumulated on one's hand by placing it in the gas, the ground is in no way wet and no amount of liquid is accumulated, and the gas dissipates and goes off into the air leaving no trace. On the other hand, when this gas is run through a choke and turned into a separator provided with baffle plates, a water-white liquid heretofore mentioned is precipitated and saved.

"It is our opinion, from the evidence, that complainant's wells do not produce any crude petroleum oil in the statutory sense of the term. They produce wet gas which when acted on by a baffle plate in the separator causes a distillate which complainant claims is oil. It is only by the most strained and technical construction that wells of this character could be classed as oil wells.

"We believe that there enters into the definition of crude oil in all applicable statutes the proposition that the substance referred to should lie in the bed or reservoir as oil and as oil be produced from it.

"It is our opinion that this condensate or distillate caught in complainant's separators is not crude petroleum oil within the contemplation of the statute."

Hence, the court threw the problem back to the engineers for further study, and charged them with the responsibility of determining whether or not the hydrocarbons in combination wells occur in a liquid or vapor phase at the bottom of the well bore.

The Louisiana Department of Conservation has classified wells which produce a fluid having an A.P.I. corrected gravity greater than 51 degrees (generally referred to as distillate) as gas wells, and prorate them as such under the 1924 gas law of that state. Under this law acreage is a factor, as any gas well located upon a five-acre tract or less is allowed to produce daily 9 per cent of its potential flow, and this scale graduates upward to the maximum of one well to 160 acres, which is allowed to produce 24 per cent of its daily maximum flow.

In the U. S. Bureau of Mines Report of Investigation No. 3402, "Flow Characteristics, Composition, and some Liquid-Phase Properties of Hydrocarbon Fluids From a 'Combination' Well," presented before the Natural Gas Department, American Gas Association, in New Orleans recently, a report of their preliminary work was given on one high-pressure 7,500-foot Lower Trinity well in the Cayuga field. The conclusions of Messrs. C. K. Eilerts and M. A. Schellhardt, co-authors, are as follows:

"The present report is limited to preliminary results of field and laboratory tests on one well in one field; therefore, general statements and conclusions regarding high-pressure 'combination' wells are not justified. Although the results of the present study are subject to verification by additional field and laboratory work, it is believed that the conclusions herein presented apply reliably to the well studied.

"Ratios of gas to hydrocarbon liquid, pressures, and temperatures within the well and the surface-recovery system and other well-flow data were observed over a considerable range of operating conditions in the well. Gas and liquid samples from the high-pressure separator and liquid samples from the well bore and stock tank were obtained for laboratory study to determine fluid-phase relations in the reservoir and recovery system. Operating conditions in the well were exceptionally favorable for a study of the well's productivity and to sampling procedure. The laboratory methods employed in treatment of the samples taken were designed particularly to give information concerning the phases of the hydrocarbon fluid in the reservoir.

"The results of the fluid and laboratory work described in the foregoing sections of this report indicate the following conclusions:

"1. Comparisons of ratios of gas to hydrocarbon liquid obtained under different rates of fluid recovery did not indicate conclusively the phase relations in the reservoir.

"2. Pressure data on the flowing well showed that liquid and gas were present simultaneously in the well bore.

"3. The composition of the subsurface liquid sample, which had a saturation pressure within 200 pounds per square inch of formation pressure, as compared with the compositions of surface liquid samples having much lower saturation pressures, does not indicate that the liquid likely would be formed entirely by condensation as a result of the 200 pounds per square inch decrease in pressure.

"4. Restoration of the saturation pressure of the subsurface sample to the value of the formation pressure by the addition of the amount of gas likely to be liberated by a drop of pressure of 200 pounds per square inch did not prevent it from remaining in the liquid phase at formation pressure and temperature. It is concluded, therefore, that part of the liquid recovered from the well was present in the reservoir in the liquid phase, and the remainder was formed during the process of production by condensation of heavy components from the original reservoir vapor phase."

This tentative conclusion that part of the liquid hydrocarbons recovered from combination

Building foundation forms for the 500-hp. compressor at Byrd-Frost's plant in the Long Lake field which will be used to reintroduce residue gas back into the high pressure formation from which it was produced. Total thickness of foundation will be 6½ feet.

wells is present in the liquid phase in the well bore was contrary to earlier studies made by engineers of the Texas Railroad Commission. For that reason, a public hearing on the classification of gas and oil wells which was to have been held April 29, 1938, was indefinitely postponed until more data could be gathered. At present the commission engineers are seeking to obtain a bottom-hole sampler, provided with a "look box" which will enable both a visual as well as an analytical check upon the changes which take place under pressure and temperature variations. Several companies are also making this a subject of special study and research.

The present ability to recycle the residue gas at from 1,500 to 2,500 pounds pressure (and more if necessary) has largely removed the desire to have combination wells classified as oil wells. As a matter of fact, the lessees benefit more by having them classified as gassers, because the statutory allowable of gas wells is 25 per cent of open flow potential, and the recoverable hydrocarbon liquid is considerably greater than would be allowed if the wells were classified as oil producers and prorated as such.

Types of Plant Design

Several different plant designs have been put into practice, and others are expected in the future. The distinguishing features of each individual system are being patented. Basically, however, the general plan of all stage separation installations is to direct the flow from the well into a high-pressure separator, where a dry gas is separated off to be recompressed and pumped back into the formation for pressure maintenance purposes. The condensate (commonly called distillate) is flowed from the high-pressure separator into an intermediate or low-pressure trap, where a much richer gas comes off the trap, and a more stable liquid is drawn off the bottom. If third-stage separation is necessary, the same general process is repeated. Provisions are made in some cases for an additional stripping of the rich gas obtained at the final stages of separation.

Obviously it is highly important to predetermine by experimentation and laboratory analysis the most efficient rates of flow and at which pressure on each separation the most effective stripping of the gas can be obtained. Also, the effective and proper accomplishment of necessary temperature changes. The essential differences in the various plant designs are in an effort to most completely achieve these objectives. Complete field testing service is now being offered for combination wells of this type, using a fully equipped laboratory mounted in a trailer which is moved from well to well for testing purposes.

In the Agua Dulce field one producing well and one intake well comprise the Process Oil Co.'s system. About 10,000,000 feet of wet gas is being produced from the one well bottomed in the 4,800-foot horizon, run through the patented stage-separation plant (which depends largely upon gas expansion to obtain desired temperature changes,) and the remaining residue is then boosted above the present formation pressure of about 1,500 pounds and all recycled. This plant has been operated several months and is in the final stage of experimentation. Highly efficient yields have been reported to date.

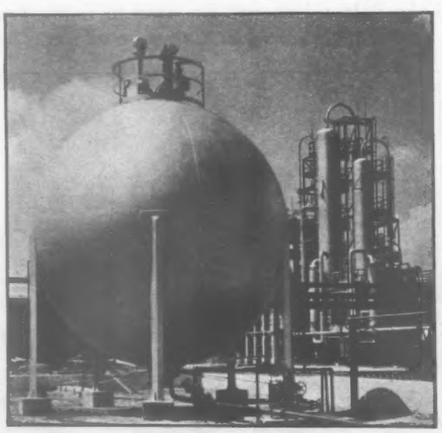
The Tide Water-Seaboard's installation at Cayuga differs particularly in that their system employs a special refrigerating unit to assist in the efficient stripping of the wet gas. About 5,000,000 feet of high-pressure gas is taken from two high structural wells in the Woodbine sand reservoir at about 4,085 feet, processed and boosted back above 1,500 pounds for recycling purposes. One 400-hp. compressor comprises the recycling system. This plant has been in operation about 60 days, and results are reported to be very successful. An enlargement to care for additional gas wells is planned in the immediate future.

Prior to the installation of this plant, Tide Water-Seaboard had demonstrated the practicability of recycling gas into the Woodbine by taking gas production from their two 3,000-pound combination wells in the Lower Trinity formation (7,500 feet deep), running the production through a high-pressure separator operating at about 1,600 pounds pressure, there knocking out much of the possible recoverable liquid, and reintroducing the residue directly from the separator vent into an input well in the Woodbine horizon. Figures 1 and 2 show the essential units of this system.

Such fields as Long Lake in Eastern Texas are highly adaptable to projects of this kind. There are about 15,000 proven gas acres in this field, but only 31 wells have been drilled in that portion of the pool to this time, primarily because of the restricted gas market, and inability to profitably produce under the prevailing statutes governing gas wells. The Byrd-Frost interests of Dallas are now constructing the first stage separation and recycling plant in that field. They are setting a 500-hp. compressor and will handle slightly larger volumes at higher pressures than at Cayuga. In granting their request to install this plant, the commission's order No. 6-255 stated in part:

"The Railroad Commission of Texas, through its engineering department has investigated this proposed recycling project, and . . . the commission finds that the gas from gas wells in the Long Lake field can be processed and returned to the horizon from which it was produced in conformity with the provisions of paragraphs "c" and "d" of subsection "1" of section 7 of House Bill 266. . . . The commission finds that the proposed method of recycling gas will not result in physical waste, but will be in the interest of conservation and prevention of waste in the Long Lake field. . . . Therefore, the commission hereby grants permission to Byrd-Frost, Inc., to produce not in excess of 25 per cent of the daily open flow potential of the gas wells located in the Long Lake field, to process this gas for its gasoline content, and return the resultant residue to the horizon from which it was produced by means of suitably located input wells or well in the Long Lake field."

In the Logansport field of De Soto Parish, Louisiana, and Shelby County, Texas, the Portex Oil Co. is building a somewhat similar plant, and will reintroduce the residue back into the deep high-pressure Trinity wells.



One thousand-barrel Hortonsphere recently completed at the Port Arthur, Tex., refinery of the Gulf Oil Corp. for storing unusually light hydrocarbon fractions. The tank is designed for an operating pressure of 250 pounds per square inch. This is comparable to the actual working pressures of many large steam locomotive boilers

Revision in Method Suggested by Gas Testing Committee

At the recent meeting of the Natural Gasoline Association of America the annual report of the gas testing committee was read by A. W. Dwen of J. E. Crosbie, Inc., chairman. After discussing field tests conducted by the group during the past year and describing the nature of the experiments, Mr. Dwen outlined the major changes in the testing procedure and equipment as follows:

Changes in Procedure

"*Meter*—It is stipulated that the meter shall be of the positive displacement type having a rated capacity not greater than 180 cubic feet per hour at one-half inch water differential. The meter shall be within 1 per cent of correct by a standard displacement test with a bell-type prover.

"*Compressor*—Two-stage compression was eliminated entirely and it was stipulated that the capacity of the single compressor should not be less than 2½ cubic feet per minute measured at 4 ounces above atmospheric pressure and operating at a discharge of 250 pounds gauge.

"*Cooling Coil*—Shall be built of one-half inch outside diameter copper tubing having a wall thickness not exceeding .045 of an inch and shall be 35 feet long. A uniform drop in the coil of one-half inch per foot is stipulated and the drain is to have the same drop and not exceed 12 inches in length. A thermometer well is provided midway up the condenser wall.

"*Accumulator*—The original paragraph concerning this piece of equipment was completely rewritten and reads as follows: 'The accumulator shall be of the water jacketed type and water from the condenser bath shall be circulated through its jacket and return line, the opening for the latter being located at the top of the annular space between the jacket and accumulator. The temperature of the circulated water discharge from the accumulator jacket as determined by a thermometer in a well located in the accumulator top shall not exceed 40° F. The accumulator shall hold at least one liquid quart (946 cc.) of condensate below the gas inlet opening and shall have only one baffle which shall be located immediately above the gas inlet opening to prevent the condensate from blowing out through the gas escape connection. The accumulator shall conform with the design shown in the accompanying sketch; shall be so constructed that it may be opened for inspection and shall have a draw-off connection and valve of standard three-eighths inch size and of a quick operating type. The inner wall of the accumulator shall be clean and smooth and its bottom shall be of such shape as to permit complete drainage through the draw-off connection.'

"*Scrubber*—An additional scrubber was provided between the vacuum pump and the meter.

"*Connections*—All connections should be as direct and short as practical and the entire equipment or any of its parts shall be open to inspection.

"*Procedure*—The paragraph in the old code dealing with the rate at which gas is to be passed through the equipment was rewritten as follows: 'A quantity of gas equal to 13-21 cubic feet or 26.42 cubic feet at a pressure of 4 ounces above atmosphere and a temperature of 60° F. shall be passed through the machine at a rate of not less than 2 cubic feet and not more than 2.5 cubic feet per minute. The flowing temperature shall be determined by reading the meter thermometer midway through the test. Other volume, pressure and temperature bases may be used by agreement between contracting parties.'

"The rate at which the pressure on the accumulator should be reduced was set at not less than 25 pounds per minute and not more than 50 pounds per minute.

"Weathering of the sample is to take place under atmospheric pressure and the rate of temperature rise is not to exceed two degrees per minute.

"In brief, these are the essential changes suggested though there are others which are largely a matter of choice of words which clarify the point under discussion. It must be understood, however, that code 101 is still the official standard for this test method and that revision is still in the tentative stage, at least until approved by both the N.G.A.A. and the A.G.A. The details given above are presented at this time as a progress report and not as points in the new standard."

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Progress in METALS

By W. L. NELSON

Metals for Low Temperatures*

Metals as a rule become softer and more ductile as temperature increases; as temperature decreases they become harder, stronger and more brittle. It is customary, nevertheless, to use atmospheric temperature as a dividing point in the temperature scale and to speak of lower temperatures as sub-atmospheric and higher temperatures as elevated temperatures.

Since the useful metals as a rule become stronger when cooled to sub-atmospheric temperatures, there is much less concern about their strength than about their brittleness, which more often is the case of failure when they are used at materially reduced temperatures. Quite a large amount of information concerning the toughness of various metals has been obtained at temperatures down to that of liquid air and it is known that not all metals and metallic alloys become brittle by such exposure.

The following table gives an idea of the effect of sub-atmospheric temperature on the hardness of some useful metals.

BRINELL HARDNESS

	At atmospheric temperature	At liquid air temperature
Ingot iron	80	269
0.80 per cent carbon steel	230	330
Malleable nickel	98	120

This increase in hardness is naturally reflected in the results of tensile tests. At —112° F., copper and a nickel-iron alloy containing 24.6 per cent nickel, 0.56 per cent carbon, 1.18 per cent manganese, show the following tensile properties:

	Tensile strength (p.s.i.)	Elongation (per cent)
Copper at room temperature	32,800	52.0
Copper at —112° F.	37,400	47.0
Ni-Fe alloy at room temperature	120,500	20.4
Ni-Fe alloy at —112° F.	160,000	14.1

The effect on tensile properties is more marked when the temperature is reduced to that of liquid air (—300° F.).

	Copper	Malleable nickel	Steel (0.40% C.)
Room temperature—			
Tensile strength, p.s.i.	32,600	93,400	79,400
Elongation, per cent	58	32.7	30.8
Liquid air temperature—			
Tensile strength, p.s.i.	50,400	112,500	139,400
Elongation, per cent	63.0	46.7	7.3

Note that the toughness of the 0.40 per cent carbon steel as indicated by the elongation in the tensile test is materially lowered by refrigeration, whereas that of copper and nickel is not, in spite of the increase in strength.

The more sensitive method of measuring toughness by determining the energy in foot-pounds or in kilogram-meters required to break a notched specimen by means of a pendulum is usually used to measure the degree of embrittlement caused by exposure of metals to sub-atmospheric temperatures. Both the Izod and Charpy types of impact testing machines are used for the purpose.

We have yet to see a metal which fails to show increased hardness when cooled to the temperature of liquid air (about —300° F.) but there are many examples of metals which maintain their toughness and even show greater toughness at such low temperatures than they do at atmospheric temperature.

While iron becomes relatively brittle when cooled to liquid air temperature both copper and nickel retain nearly all of their toughness at atmospheric temperature. It seems possible to take advantage of this characteristic of copper and nickel in making alloys which retain their toughness at low temperatures. Additions of nickel and copper to steel improve the impact resistance at sub-atmospheric temperatures, and when copper and nickel are alloyed to produce monel metal we have an alloy which will give a Charpy impact of 62 foot-pounds at room temperature and 63 foot-pounds when cooled to —112° F.

When added to steel, nickel forms a series of alloys, starting at about 42 per cent nickel content, whose high toughness at room temperature is not at all decreased by cooling to —300° F. An alloy of 55 to 60 per cent nickel and 1 to 3 per cent manganese with iron, known as "AMF" metal, has a Charpy value at 70° F. of 81 foot-pounds, and at —300° F. it is 76 foot-pounds.

The austenitic stainless chromium-nickel steels of the 18-8 type, when fully annealed by a water quench from 2,000° F., retain their toughness when cooled to liquid air (—300° F.). A Charpy value of 56 foot-pounds at 70° F. was lowered to but 47 foot-pounds at —300° F.

*By F. B. Foley, the Midvale Co., Philadelphia. Abstracted from one of the lectures sponsored by the Philadelphia chapter of the American Society for Metals, on "Metals—How They Behave in Service."

Metallurgical Terms—

Annealing

The following discussion of annealing was adopted by the A.S.T.M. and the Society of Automotive Engineers, as a definition of the several operations which in general are classified as annealing. Whereas the term annealing is used in connection with so many operations, it is necessary to recognize that all of the special uses of the term are only modifications of the general generic term.

Annealing is a heating and cooling operation of a material in a solid state. Annealing usually implies a relatively slow cooling. Note: Annealing is a comprehensive term. The purpose of such a heat treatment may be:

1. To remove stresses. 2. To induce softness. 3. To alter ductility, toughness, electrical, magnetic or other physical properties. 4. To refine the crystalline structure. 5. To remove gases. 6. To produce a definite microstructure.

In annealing, the temperature of the operation and the rate of cooling depend upon the material being heat treated and the purpose of the treatment. Certain specific heat treatments coming under the comprehensive term "annealing" are:

Full Annealing—Heating iron-base alloys above the critical temperature range, holding above that range for a proper period of time followed by slow cooling through the range. Note: The annealing temperature is generally about 100° F. above the upper limit of the critical temperature range, and the time of holding is usually not less than one hour for each inch of section of the heaviest objects being treated. The objects being treated are ordinarily allowed to cool slowly in the furnace. They may, however, be removed from the furnace and cooled in some medium that will prolong the time of cooling.

Process Annealing—Heating iron base alloys to a temperature below or close to the lower limit of the critical temperature range, followed by cooling as desired. Note: This heat treatment is commonly applied in the sheet and wire industries and the temperatures generally used are from 1,020° to 1,200° F.

High Strength Oil Chain*

The Baldwin-Duckworth Chain Corp. of Springfield, Mass., has recently developed an oil field rotary chain which is designed to meet the increasingly severe operating conditions of deep well drilling. Known as the "Master," this chain has a minimum ultimate strength of 185,000 pounds and is said to be the strongest chain of its type available. Alloy steels containing 1½ to 2 per cent nickel are specified in this chain for side bars, rollers, pins, and bushings. To gain a proper impression of the actual size of this chain, the pitch (link length) is approximately 4 inches and the weight 16½ pounds per foot. In use it is continually called upon to operate at speeds in excess of 1,500 feet per minute.

This company also produces a stainless steel conveyor chain which has been developed to meet the demand for corrosion-resistance and for applications subject to elevated temperatures. All parts of this chain are made of "18-8" chromium-nickel stainless steel. The company specifies nickel alloy steels for all parts of roller chains used in this and similar applications, as follows:

Side links	S.A.E. 3140 (Ni-Cr) Heat treated
Pins	S.A.E. 2315 (3½ Ni) Casehardened
Bushings	S.A.E. 3115 (Ni-Cr) Casehardened
Rollers	S.A.E. 3140 (Ni-Cr) Heat treated

*From "Nickel Steel Topics," April 1938.

Laboratory Construction

The new research laboratory recently completed by the American Rolling Mill Co. at Middletown, Ohio, picture of which is also shown on this page, should be an interesting model whether it be for steel research or petroleum research and what is suitable in one instance would have much the same advantages when put to another use. The keynote of the dedicatory address by Charles F. Kettering of General Motors was "Research is what keeps industry healthily dissatisfied with itself." President Hook of the Armco Co. said "Research is the key, industry the force that can turn the lock."

The architecture and style of this new laboratory is in tune with the spirit of scientific development. There are many innovations in building construction such as the use of air conditioning and cooling, fume disposal, glass block, stainless steel, and porcelain enamel iron that add much to any research laboratory.

OPERATING IDEAS

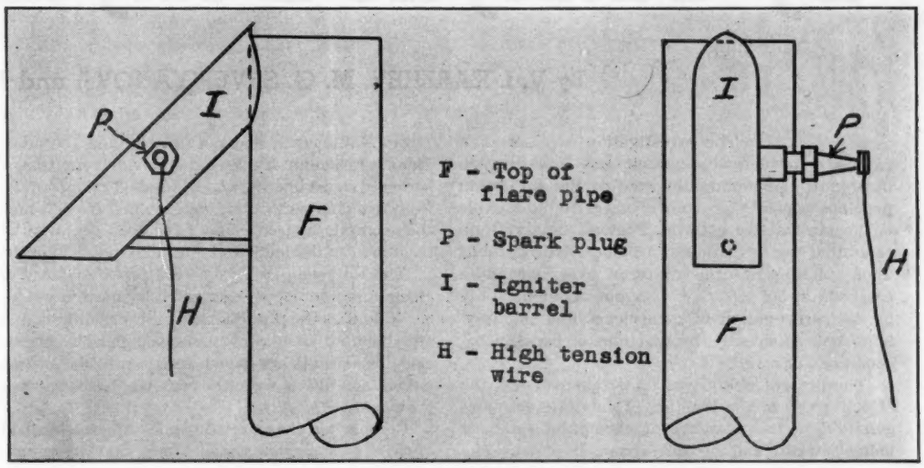
Pipe Cradle and Preheater

A drilling contractor using a steam rig has built a pipe rack from short lengths of pipe and has assembled the rack so that a water preheater forms a part of the assembly. This provides added strength and rigidity. The short lengths of pipe and the preheater are welded together. The assembly may be loaded on a truck or dragged over the ground as the need arises. The loose pipes

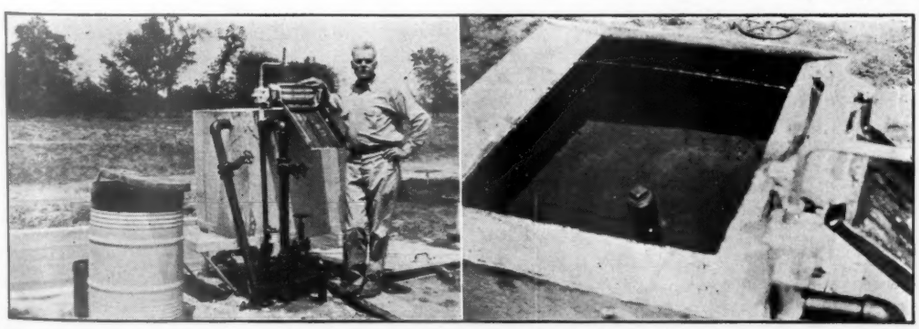
and tubing that become a part of every steam rig are thrown on the rack when the time comes for moving the rig to a new location and the rack not only becomes a convenient means of transporting this equipment but safeguards its shape in transit.

Electrical Ignition for Tank or Lease Flares

Lighting of tank or lease flares by the common method of throwing a lighted torch at the orifice atop the flare pipe becomes an especially hazardous practice when the gas vented is heavier than air, as is the case in the East Texas field. To eliminate this danger one switcher, after much experimentation, devised the electrical ignition method illustrated in the accompanying front and side diagrams. Cut out to fit around the top of the—in this case—4-inch riser, a 12-



inch section of 2-inch pipe is welded to the riser, with the upper edge projecting above the rim of the riser by a ⅜-inch gap. To prevent excessive up-draft the bottom of the 2-inch pipe is cut off at 45 degrees so that its lower edge is horizontal. In operation, when flow of gas begins through the riser, a small amount of the gas escapes through the narrow aperature at the top of the 2-inch angle piece, and literally slides down the 2-inch, becoming more or less thoroughly mixed with the air in the 2-inch while so doing. A spark from the magneto temporarily set on the bracket at the base of the riser then ignites this mixture, shooting a flame through the narrow aperture at the top, and igniting the main stream of gas. Once ignited, the draft set up around the 4-inch flare causes air flow through the 2-inch, and the entire assembly is kept cool enough to protect the high-tension wire led through insulators down the pipe to a convenient point for setting the magneto. For flares which become water bound every time the river rises, it is necessary only to attach a ground wire from the switcher's outboard motor to the flare pipe, and to touch the high-tension wire to the spark plug or coil of the motor. This plan eliminates the possibility of the thrown torch finding a pool of gas in some low place, with consequent danger to the switcher.

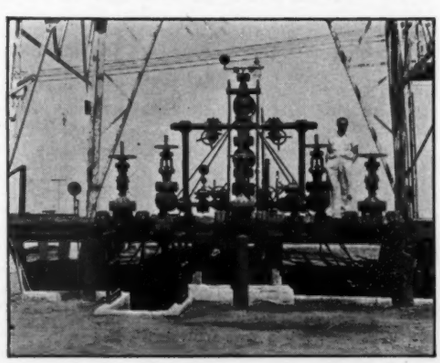


Washing Machine Cuts Pipe Line Station Expenses

A novel washing machine has been devised by the chief engineer of a pipe line station in the Fitts field of Oklahoma. Like all other items the use of rags is carefully watched and in order to cut down the expense incurred for rags the washer was devised. To avoid trying to make a dirty rag last as long as possible it was decided to wash out the rags three times a week in a tank supplied with warm water from the supply of jacket cooling water in the station. The washing device consists of a square tank, 24 by 24 by 24 inches adjoining which is a narrow compartment 6 inches wide to receive overflow of oil rising to the surface. The skimming of oil from the surface of the square tank is accelerated by air, conducted to the washer from the station by a small line, rising from the bottom of the washer. Oil and water are prevented from flowing over on the ground by the sloping sides 4 inches high around the top of the washer. After washing, oil and water mixture goes to the sump.

Header on Christmastree

When equipping a high-pressure flowing well, one California oil company uses a header at the side of the derrick floor. The discharge lines from the christmastree all connect to the header, which is provided with a sufficient number of gates to make it possible to remove the pressure from any one of the lines without disturbing the remainder. Thus repairs can be made on one side while fluid is passing through the other.



High-Octane Gasoline Obtained by Catalytic Dehydrogenation

By V. I. KARZHEV, M. G. SEVER'YANOVA and A. N. SIOVA*

The investigation of a series of catalysts for dehydrogenation and isomerization of organic compounds, reported by the authors in previous papers[1,2] has shown that chromium oxide is the most active catalyst. Previous study† indicated that the formation of aromatic hydrocarbons upon passing natural mixtures over chromium catalysts at 500-550° C. is brought about not only by dehydrogenation of naphthenes and naphthylenes but, apparently, by reactions of paraffin hydrocarbons as well.

The present study was undertaken to test the effectiveness of the reaction of catalytic dehydrogenation in the presence of chromium catalysts using tetralin and decalin (from Dupont). The possibility of converting paraffin hydrocarbons into aromatics has been studied using the following hydrocarbons: normal decane and iso-decane (from Kahlbaum), and normal heptane (obtained from petroleum, Kahlbaum). Aside from this, a series of experiments was conducted using a fraction from Grozny aviation gasoline from which the aromatic hydrocarbons have been removed by treatment with oleum and antimony pentachloride.

The following catalysts were tested: Oxides of chromium and copper, activated by barium oxide; chromium ortho-phosphoric acid; chromium and molybdenum oxide; chromium-copper-phosphoric acid. The results are shown in Table 1. The experimental conditions were the same as those reported previously.

Comparing these results with those obtained in past investigations we must note that chromium-phosphoric acid and chromium oxide-copper oxide catalysts have very similar effects. This can be concluded from the changes in the refractive indices after each pass using these two catalysts. Chromium-molybdenum oxide and especially chromium-copper-phosphoric acid catalysts have been found to be most active.

The catalyzate, obtained by passing a fraction from Grozny aviation gasoline over chromium-copper-phosphoric acid catalyst, contained 32.2 per cent aromatic hydrocarbons. There was a negligible increase in the concentration of unsaturated hydrocarbons. A comparison of the group analyses of the charging stock and of the product indicates a considerable decrease in the concentration of paraffin hydrocarbons.

When tetralin and decalin are passed over chromium-phosphoric acid and chromium-copper-phosphoric acid catalysts the reactions which take place are not dehydrogenation reactions alone, but also those connected with the rupture of the ring. For example, when tetralin was passed over the least active catalyst of the group, that is chromium-phosphoric acid, at a temperature of 550° C. (single pass) the obtained catalyzate distilled within the limits of 120-215° C. (the analysis of the catalyzate is not given in the attached table). A fraction of the product, boiling at 130-150° C., had the following constants: $d_4^{15} = 0.8660$ and $n_D^{17} = 1.5050$. This indicates a xylene content of practically 100 per cent. The yield of this fraction amounted to 5 per cent of the catalyzate. Higher boiling fractions consisted of naphthalene and a small amount of

*This abstract has been submitted by the Petroleum Division of the American Chemical Society. The Petroleum Division, however, assumes no responsibility for the facts and opinions presented in this paper, nor does it necessarily endorse statements made therein.

Translated by Vladimir Haensel. Khimia Tverdogo Topliva 7, 559-65 (1936).

†Cyclohexane was used in investigations reported in (1).

TABLE 1—Part (a)

Experiment No.	Catalyst—	Experimental conditions: Charging stock: Name of hydrocarbon	d_4^{15} (†)	n_D^{20}	Hydrocarbon type in %: Paraffin	Naphthene	Quantity of charge in grams	Temperature in °C.	Rate in grams/min.	No. of passes	Change in product: n_D^{20} After 1st pass	2d pass	3rd pass	Yield: Catalyzate in % of charge	Gas in cc. per gram of charge at 0°C. 760 mm.
1	Chromium + ortho-phosphoric acid	Grozny*	.7110	1.4000	72.9	27.1	24.4	500	0.14	3	1.4039	1.4057	1.4066	(‡)	117
2	Chromium oxide + copper oxide, activated by barium oxide	Grozny	.7110	1.4000	72.9	27.1	26.0	500	0.14	3	1.4090	1.4128	1.4190	...	300
3	Chromium and copper + ortho-phosphoric acid	Grozny	.7110	1.4000	72.9	27.1	25.0	500	0.14	3	1.4100	1.4182	1.4267	...	389
4	Chromium and molybdenum oxide	Grozny	.7110	1.4000	72.9	27.1	20.3	500	0.14	3	1.4060	1.4095	1.4160	...	212
5	Chromium and copper oxide, + ortho-phosphoric acid	Grozny	.7303	1.4025	58.6	41.4	25.60	500	0.14	3	1.4115	1.4255	1.4370	...	395
6	Chromium oxide + copper oxide, activated by barium oxide	Tetralin	.9758	1.5441	...	...	32.93	500	0.14	1	1.5450	.....	.....	98	314
7	Chromium oxide + copper oxide, activated by barium oxide	Tetralin	.9758	1.5441	...	...	23.65	550	0.14	1	.....	.....	.....	89	253
8	Chromium + ortho-phosphoric acid	Tetralin	.9758	1.5441	...	...	23.25	500	0.14	1	.....	.....	.....	90.5	220
9	Chromium + ortho-phosphoric acid	Tetralin	.9758	1.5441	...	...	24.28	550	0.14	1	.....	.....	.....	86.0	206
10	Chromium + ortho-phosphoric acid	Decalin	.8870	1.4765	...	...	18.6	550	0.14	1	1.5044	.....	.....	70.0	320
11	Chromium + copper + ortho-phosphoric acid	Decalin	.8870	1.4765	...	...	25.85	500	0.14	1	.....	.....	.....	89.0	118
12	Chromium + copper + ortho-phosphoric acid	Decalin	.8870	1.4765	...	...	26.85	550	0.14	1	1.5205	.....	.....	...	432
13	Chromium + copper + ortho-phosphoric acid	Decane	....	.....	...	...	20.0	500	0.14	2	1.4232	1.4400	.....	...	330
14	Chromium + copper + ortho-phosphoric acid	Iso-decane	.7467	1.4120	...	...	15.0	500	0.14	1	.....	.....	.....	...	210

*A fraction from Grozny gasoline from which aromatic hydrocarbons have been removed.
†Experiments 11-14 have d_4^{17}.
‡The yield of catalyzate for a triple pass experiment because intermediate analyses complicate the determination of the yield.

TABLE 1—Part (b)

Experiment No.	Nature of obtained product: Density	n_D^{20}	Iodine No.	Aniline point after removal of unsat. & arom.	Per cent of each hydrocarbon class: Unsaturated	Aromatic	Naphthenic	Paraffinic	Gas analysis in percentage: C_mH_n	CO	H_2	C_nH_{2n+2}	CO_2	N_2
1	.....	.....	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	...
2	$d_4^{15} = 0.7420$	1.4190	50.1	54.5	19.7	20.3	38.0	22.0	19.09	2.83	47.19	27.7	4.58	...
3	$d_4^{15} = 0.7583$	1.4267	54.4	56.0	21.4	32.2	25.30	21.1	15.73	1.9	57.12	21.54	1.63	2.08
4	$d_4^{15} = 0.7420$	1.4160	34.4	54.8	13.2	21.76	40.1	24.94	19.55	3.46	41.04	21.20	8.67	6.08
5	$d_4^{20} = 0.7700$	1.4370	49.2	57.5	18.96	36.76	28.1	21.18	24.84	0.91	44.42	27.04	0.92	1.87
6	.....	1.5450	.	.	....	95.0	....	. . .	.	1.05	97.89	....	1.01	0.05
7	.....	.....	...	...	.....	90.0	.....	.....	0.59	1.58	94.53	.....	1.82	1.48
8	.....	.....	...	...	.....	90.0	.....	.....	0.84	1.34	96.80	1.11	1.61	
9	.....	.....	...	...	.....		.....	.....	2.33	1.70	87.64	4.07	0.75	3.51
10	.....	1.5450	...	...	19.41	36.79	41.60	2.2	26.31	1.43	34.36	36.96	0.97	*
11	.....	.....	...	...	14.4	20.2	65.4	....	9.99	1.32	70.58	15.33	0.58	2.20
12	.....	.....	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	...
13	$d_4^{15} = 0.7586$	1.4400	64.0	73.0	24.6	44.8	8.34	22.26	24.06	3.55	33.43	32.67	0.59	5.7
14	$d_4^{15} = 0.7220$	.....	...	79.0	33.7	18.0	....	47.8	16.66	2.38	50.05	31.65	1.49	...

*Hydrocarbon class analysis is based on the starting material in experiment 10—that is, decalin. The unchanged decalin is included in the analysis of the product.

the unchanged tetralin. A single pass of decalin over the same catalyst and at the same temperature gave a 70 per cent yield of catalyzate containing only 8 per cent naphthalene.

Analysis of Catalyzate

The naphthalene was removed and the catalyzate was separated into fractions. The initial boiling point was 64° C. An analysis of the fractions indicated that the naphthenes consisted of unchanged decalin. A high concentration of aromatic hydrocarbons was found in fractions boiling up to 150° C., toluene and xylene (according to refraction and density determinations) being the major constituents. The catalyzate had the following group analysis:

	Per cent
Unsaturated hydrocarbons	19.41
Aromatic hydrocarbons	28.79
Naphthenic hydrocarbons	41.6
Paraffin hydrocarbons	2.2
Naphthalene	8.0

Thus it can be seen that under the above conditions (single pass, 550° C.), decalin is converted to the extent of 58.4 per cent. Recalculating the results based on converted decalin alone, we have the following analysis:

	Per cent
Naphthalene	13.8
Unsaturated hydrocarbons	33.4
Aromatic hydrocarbons	49.6
Paraffin hydrocarbons	3.2

A single pass of decalin even at 500° C. over chromium-copper-phosphoric acid catalyst yielded a catalyzate containing 20.2 per cent aromatic hydrocarbons in the fraction boiling up to 150° C. (This value of 20.2 per cent is based on the original decalin input). This indicates that this catalyst is more active than phosphoric acid-chromium oxide. The conversion extent is 35.0 per cent, the catalyzate, based on the converted decalin, consisting of 41.0 per cent unsaturated and 59.0 per cent aromatic hydrocarbons (low boiling).

Only traces of naphthalene were found in the catalyzate. At a temperature of 550° C. a single pass of decalin over this catalyst gave a 50.2 per cent by weight yield of low boiling aromatic hydrocarbons, based on the original decalin. The 130°-150° C. fraction of the catalyzate had the following constants: $d_4^{15} = 0.8720$ and $n_D^{20.5} = 1.5032$. These constants again indicate a practically 100 per cent content of toluene and xylene. An analysis of the fractions boiling up to 130° C. indicated the presence of benzene in the fraction boiling 78°-90° C. The rest of the catalyzate boiling above 150° C. consisted of unchanged decalin and naphthalene.

The gas analyses indicate that in the case of dehydrogenation the obtained gas is nearly 100 per cent hydrogen. However, if ring rupture takes place as well the hydrogen content decreases and unsaturated hydrocarbons appear in considerable quantities. Thus, in the case of 35 per cent conversion of decalin the gas consists of 25.5 per cent saturated and unsaturated hydrocarbons and 70.0 per cent hydrogen.

On the basis of these data it can be concluded that decaline and tetralin undergo, in the presence of these catalysts, not only dehydrogenation but also a ring rupture, with a considerable formation of low boiling aromatic hydrocarbons. The presence of paraffin hydrocarbons in the catalyzate from decalin conversion must also be noted. The probable schemes of reactions taking place when decalin is passed over these catalysts are shown at the bottom of the first column.

Experiments carried out with normal heptane gave results which are anologous to those obtained using a fraction from Grozny gasoline. An analysis of the charging stock indicated that it did not consist of a pure hydrocarbon but was instead a mixture containing naphthenes.

The following series of experiments was conducted using normal decane and a chromium-copper-phosphoric acid catalyst. It must be noted that the product marketed by Kahlbaum as normal decane does consist of a mixture of normal decane and higher paraffin hydrocarbons, since its analysis gave the following constants: $d_4^{20} = 0.7711$, $n_D^{20} = 1.4175$, aniline point = 95° C. The hydrocarbon did not react with oleum.

Analysis of Product

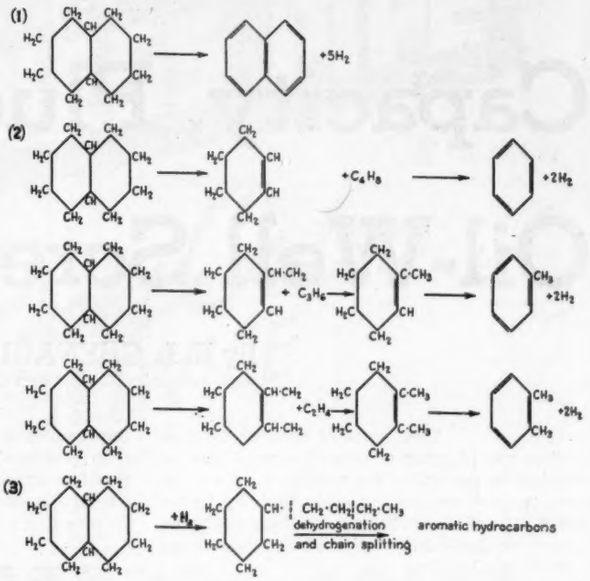
The initial boiling point of the catalyzate was 40° C. and the endpoint was 179° C. Most of the material distilled up to 120° C. A quantitative analysis of the product gave the following results: Aromatic hydrocarbons 44.8 per cent, naphthenes 8.34 per cent, unsaturated hydrocarbons 24.6 per cent and paraffins 22.2 per cent. The yield was approximately 70 per cent. The gas analysis showed the presence of saturated and unsaturated hydrocarbons as well as hydrogen.

The available iso-decane, the constants of which showed a fair agreement with the theoretical values for this compound, was also passed over the chromium - copper - phosphoric acid catalyst. The aromatic content of the catalyzate was 18 per cent and the gas contained 50 per cent hydrogen.

Up to the present time, all the investigations in the field of pyrolysis and cracking[3,4] of normal paraffin hydrocarbons indicate that on pyrolysis as well as cracking these hydrocarbons basically undergo reactions of chain splitting with the formation of lower saturated and unsaturated aliphatic hydrocarbons.

We were able to prove the presence of a reaction according to which paraffin hydrocarbons undergo a ring closure and a simultaneous dehydrogenation. This is shown by the presence of considerable quantities of aromatics in the catalyzate gas. This reaction is of exemplary interest both from a scientific point of view and its possible application for increasing the octane number of motor fuels.

The following are the possible schemes according to which the reactions take place:



Conclusions

1. New active catalysts have been applied for the dehydrogenation of hydroaromatic compounds.

2. It has been shown that it is possible not only to dehydrogenate tetralin and decalin but also bring about the reaction of ring rupture at 500°-550° C. with the formation of low boiling aromatic hydrocarbons.

3. The possibility of obtaining aromatic hydrocarbons from paraffins using some of these catalysts has been indicated.

4. Possible schemes of reactions of breakdown of hydroaromatics and formation of aromatics from paraffin hydrocarbons are presented.

Special investigations are to be conducted along these lines.

Acknowledgment

We wish to thank I. B. Rapport for his help during the investigation and for his revision of the paper.

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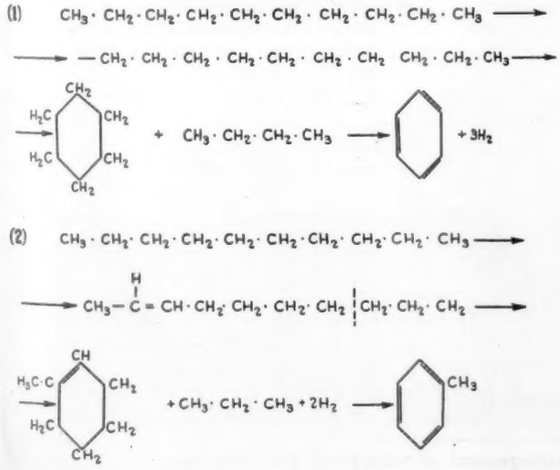
DECALIN REACTION SCHEMES



New Pool in East Sumatra Reports Three Completions

Production from the east coast of Sumatra may occupy a more important ranking in the Netherlands East Indies during 1938 as a result of the discovery and exploitation of a new pool between Pangkalan Brandan and Pangkalan Soesoe. Since the first of the year Bataafsche Petroleum Maatschappij, subsidiary of the Royal Dutch-Shell group, usually referred to as "B.P.M.," has completed three wells. The new production is being handled by pipe line to the company's refinery at Pangkalan Brandan.

Geological and geophysical work on the Nederlandsche Pacific Petroleum Maatschappij concession in the Rokan district of the east coast of Sumatra is being extended this year. The company, jointly owned by Standard Oil Co. of California and Texas Co., recently accepted delivery on two house boats for accommodation of its geological personnel. The area under investigation abounds in rivers and marshes.

Experiments on Fluid Capacity, Plugging of Oil-Well Screens

By R. L. CHENAULT
Gulf Research & Development Co.

This series of tests on fluid capacities and plugging of oil-well screens was undertaken to determine the relative merits of various types of screens commonly used, by testing under controlled conditions with equipment designed for simulating various situations assumed to exist in oil wells.

All tests were made with samples of screens 6 inches in length and approximately 3 inches in outside diameter. Tests were first made to compare the free-flow rates of the various screen samples, and then the screens were installed in the apparatus for testing rates of flow when packed in sand—and these tests were continued for several days in each case.

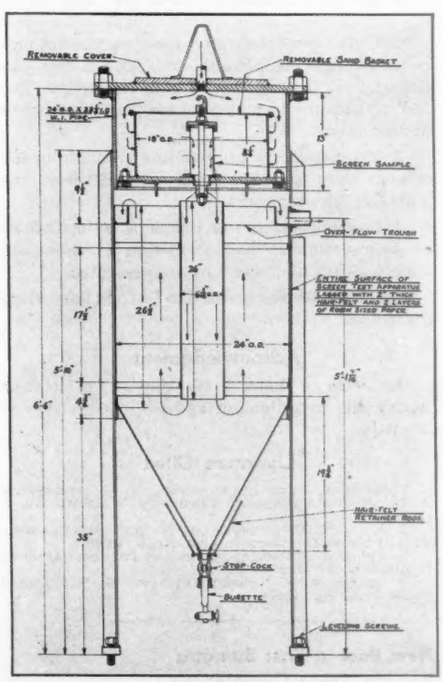


Fig. 1 — Screen-testing chamber and sedimentation tank

Description of Apparatus

The screen-testing chamber used for making sand-pack flow and plugging tests is shown in Figure 1, and consists of a 24-inch outside-diameter by ⅜-inch wall pipe which serves as a container for holding an 18-inch diameter perforated sand basket, in the center of which are mounted the samples of screens, their open ends sealed off with gaskets. With the inside of the screen exposed to atmospheric pressure, the pressure differential across the screen sample and sand-pack surrounding it is the oil gauge pressure existing in the pressure chamber. This pressure in most tests was held at 50 pounds per square inch. After leaving the screen sample, the oil passed through a countercurrent-flow settling tank provided with a conical bottom and terminating in a burette for collecting any sand that may have passed through the screens, from which it overflowed into a collecting trough and flowed to the suction tank for re-circulation.

***A.P.I.*—Presented at Mid-Year Meeting, Wichita, Kansas, May 24, 1938**

Figure 2 shows the general arrangement of sand-pack test apparatus. Oil circulation was maintained by a rotary pump, whose surplus output was bled back to the suction tank through a spring-loaded relief valve. After passing through a sand-packed pre-filter and a 100-mesh wire-cloth strainer, the oil stream was measured by a service-station type gasoline meter, the accuracy of which was checked against a standard 5-gallon measure at definite intervals between runs. The oil then flowed through a mercury-loaded constant pressure regulator of ± 0.1 pound per square inch in accuracy, to a 1,600-watt electrical immersion type heater controlled by a thermostat to provide a temperature of 140 deg. F., ± 0.1 deg. F. From this point, the oil passed to the screen-testing chamber, the settling tank, and back to the suction tank. Alternate pre-filters were installed in the set-up to be used when cleaning the main filter, without interrupting the test.

The free-flow tests were made in a similar set-up except that the outlet was not open to the atmosphere, but was elevated so that the testing chamber was always full of oil and even at very low rates of flow, and pressure taps were provided for measuring differential pressures across the screen.

Lubricating oil having a viscosity of 22 centipoises at the operating temperature of 140 deg. F. was used for all tests. River sand, having a permeability of 17.45 darcys, was used for surrounding the screens for sand-pack flow. The analysis of this sand on the Tyler standard screen scale is shown in the curve and table of Figure 3.

Results of sand-pack flow tests are meaningless unless precautions are taken to filter thoroughly the circulating oil and to obtain a uniform sand-pack. The filtering problem offers little difficulty, and a simple sand-bed type of filter was entirely satisfactory—and many other types of filters would doubtless be equally satisfactory. However, a method for obtaining sand-packs of reproducible permeability was a much more serious problem. Several months were spent in experimenting with various methods of tamping and settling sand in oil before an acceptable method was found. In the method finally adopted, sand was mixed with the circulating oil in the proportion of 1 pound of oil to 20 pounds of sand. After the screen was in position, the sand basket was filled with the sand-and-oil mixture and placed on a jolt ramming machine and jarred for four 15-second intervals—additional oily sand being added as the sand level receded after each shaking. This jarring machine was the property of the Pittsburgh Equitable Meter Co., and was used in its foundry for settling molding sand.

Before using this method the quantities of oil passed by the same screen, in what appeared to be identical sand-packs, varied as much as 40 per cent. After adopting this technique, rates of flow through the same screen could be checked within 1 per cent.

Types of Screens Tested

Table 1 gives the types and important dimensions of the screens tested, as well as data showing free-flow and sand-pack-flow results for the various types. The wire-wrapped screens were wound on 2⅞-inch-outside-diameter perforated pipe, except as noted in Table 1; and similar pipe was used for making the button-type and slotted-pipe screens. The screen samples were supplied by the manufacturers in 6-inch over-all lengths. The slot widths given in the table were obtained by averaging values obtained by measuring all slots with a thickness gauge, and do not necessarily agree with the size claimed by the manufacturer. However, slot widths seldom varied

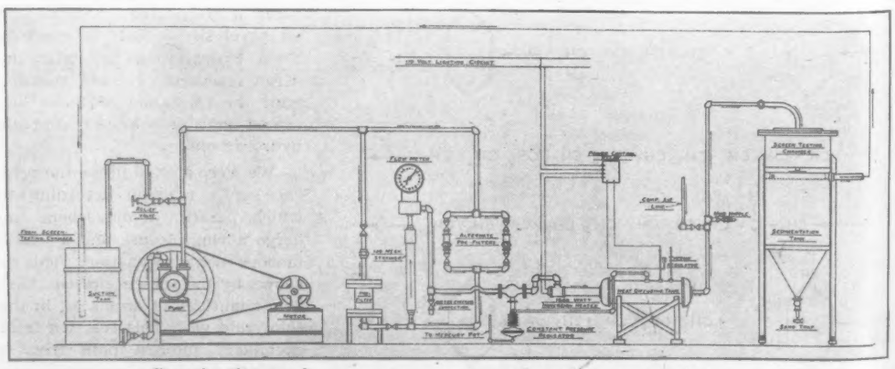


Fig. 2—General arrangement of sand-pack test apparatus

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more than 0.002 inch from the marked size. Differences in methods of preparation of the perforated pipe for the wire wrapping are not shown in this table, as an adequate description of the various designs of supports and methods of counter-sinking or grooving the pipe to decrease flow resistance cannot be given briefly enough to include in the table. The various sizes and shapes of wire used for wrapping are also omitted from the table. These factors are discussed along with the results of the flow tests.

Free-Flow and Sand-Packed Flow Tests

Results of free-flow tests at pressures ranging up to 29 pounds per square inch in case of the less permeable screens are shown in Figure 4. The capacity of the pump was about 90 gallons per minute, and this quantity would flow through the most permeable screen at a pressure of 3.5 pounds per square inch.

Values of free flow, in barrels per day per linear foot of screen with 1-pound pressure differential, are shown in Table 1, where the variations in rate of flow may be readily checked with screen dimensions. Similar data are given for flow through the screens when packed in sand with 50-pound pressure differential.

Screens Nos. 1, 2, and 3 were made to identical specifications except for the material of the wire wrapping, which is unimportant for our tests. There were some slight differences in net slot area and net-area of perforations as well as slot width, but these screens were probably as nearly identical in construction as is possible to obtain in wire-wrapped screen produced commercially. The wire wrapping used in this case was tapered to give an under-cut effect of about 11 deg., and the taper extended to the outer edge of the wire. Flow area behind the wire wrapping was increased by milling shallow grooves around each perforation parallel to the axis of the pipe. Free-flow tests at 1 pound pressure checked exactly for the first two samples at a rate of 852 bbls. per day per linear foot, while with the third sample the rate dropped to 804 bbls. per day. This difference possibly was caused by a difference in dimensions of the flow grooves around the perforations in the pipe, or it may have been due to an error in observation. In any case, this variation did not show up in sand-pack flow, where the flow rate for No. 3 was about 8 per cent higher than for No. 1—the values for the three screens being 180, 202, and 194 bbls. per day, in the order named.

Screens Nos. 4 and 5 were wound with the same type wire, and on the same type milled grooves and perforations, as used for the first three samples; but the number of perforations was practically doubled. Comparing No. 4 with No. 3, it is seen that the slot width is reduced to 0.007 inch from 0.009 inch, and that the slot area is reduced 21 per cent; yet the free-flow rate increased from 804 bbls. per day for No. 3 to 1,150 bbls. per day for No. 4 as a result of doubling the area of perforations and flow grooves to decrease resistance after passing through the screen slots. However, when packed in sand, the effect of doubling the area of perforations was slightly more than offset by the decrease in slot area and width—resulting in a flow rate of 191 bbls. per day, or a slight decrease when compared with No. 3.

Screen No. 5 is practically identical with No. 3 in all respects except for the larger number of perforations. In this case the free-flow rate is increased to 1,267 compared with 804 bbls. per day for No. 3, and the sand-pack-flow rate is increased from 194 to 263 bbls. per day, or an increase of 35.5 per cent.

The button-type screens Nos. 6 and 11 were similar in design, except for the fact that No. 6 had 11.44 buttons per foot, and No. 11 had 23. The average slot width of No. 6 was 0.008 inch, while that of No. 11 was 0.007 inch—making the slot area of No. 11 85.5 per cent greater than that of No. 6. This resulted in a free flow of 165 bbls. per day for No. 6 and 383 bbls. per day, or an increase of 132 per cent, for No. 11. With sand-pack flow the values were 137 and 196, or an increase of 43 per cent—which is about one-half of the percentage increase in slot area.

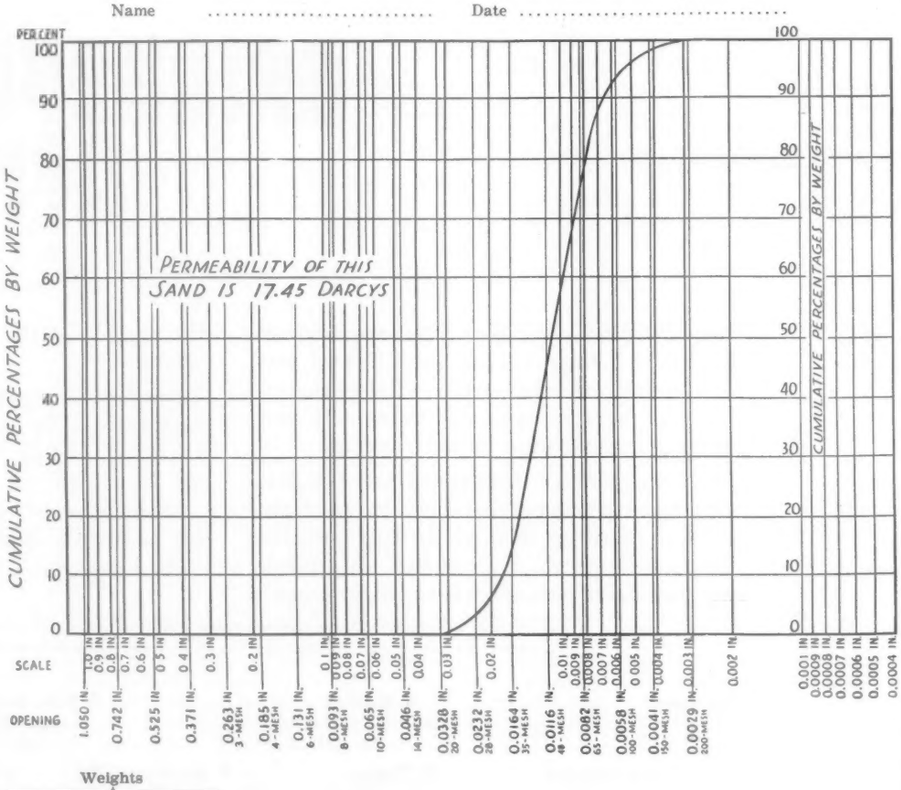
Samples Nos. 7, 8, 9, and 10 were wrapped with wire of slightly different design from that used on the wire-wrapped screens previously discussed. The wire is shaped to give parallel slots for a short distance from the outer edge, and is relieved with an 8-deg. taper throughout the remainder of the slot depth. Aside from the variations in slot width from 0.008 inch to 0.010 inch and the relatively small variations in slot area per linear foot, samples Nos. 7, 8, and 9 differed only in design of flow channels leading to the perforations behind the wire wrapping as follows:

No. 7—Wire wound directly on plain perforated pipe.

No. 8—Perforations counter-sunk, increasing diameter of the opening under wire to 1 inch at each perforation.

No. 9—Wire supported on bars holding wire about ⅛ inch from outer wall of pipe.

In comparing No. 7 with No. 8, it is seen that the effect of the extra flow area behind the wire resulting from counter-sinking the perforations more than doubled the free-flow rate for No. 8—although the slot width and slot area are greater



Indicate the screen crushed through and also first retaining screen

Screen scale ratio 1.414

Openings			Diameter wire	Weights			Assays			Contents			Total contents, per cent		
Inches	Millimeters	Mesh	(Inches)	Sample weights (Grams)	Per cent	Per cent cumulative weights									
1.050	26.67	...	0.149												
0.742	18.85	...	0.135												
0.525	13.33	...	0.105												
0.371	9.423	...	0.092												
0.263	6.680	3	0.070												
0.185	4.699	4	0.065												
0.131	3.327	6	0.036												
0.093	2.362	8	0.032												
0.065	1.651	10	0.035												
0.046	1.168	14	0.025	0	0	0									
0.0328	0.833	20	0.0172	1.2	0.1	0.1									
0.0232	0.589	28	0.0125	13.3	1.6	1.7									
0.0164	0.417	35	0.0122	113.0	13.0	14.7									
0.0116	0.295	48	0.0092	160.8	18.5	33.2									
0.0082	0.208	65	0.0072	353.7	40.8	74.0									
0.0058	0.147	100	0.0042	177.6	20.4	94.4									
0.0041	0.104	150	0.0026	19.4	2.3	96.7									
0.0029	0.074	200	0.0021	28.2	3.2	99.9									
0.0029	0.074	200	0.0021	1.1	0.1	100.0									
Pass															
Total				868.3	100.0										

Fig. 3—The Tyler standard screen scale

TABLE 1—DIMENSIONS OF SCREEN SAMPLES, AND FLOW DATA WITH AND WITHOUT SAND-PACK

Screen No.	Type—	Slot width (Inches)	Effective length of sample (Inches)	Outside diameter of screen (Inches)	Slot area (Square inches)	Slot area (Per cent)	Net slot area per linear foot (Square inches)	Outside diameter of perforated pipe (Inches)	Diameter of perforations (Inches)	Area of perforations (Square inches)	Perforated area in terms of external screen area (Per cent)	Net area of perforations per linear foot (Square inches)	Number of perforations per foot	Free flow at 1 lb. differential (Bbls. per day per linear foot)	Sand-pack flow at 50 lb. pressure differential (Barrels per day per linear foot)
1	Wire-wrapped	0.008	5.320	3.188	2.716	5.10	6.13	2.875	0.375	2.65	4.97	5.98	54.2	852	180
2	Wire-wrapped	0.009	5.320	3.156	2.843	5.39	6.41	2.875	0.375	2.65	5.02	5.98	54.2	852	202
3	Wire-wrapped	0.009	5.380	3.188	2.763	5.13	6.17	2.875	0.375	2.65	4.92	5.91	53.5	804	194
4	Wire-wrapped	0.007	5.300	3.125	2.149	4.13	4.87	2.875	0.375	4.75	9.13	10.75	97.4	1,150	191
5	Wire-wrapped	0.009	5.300	3.141	2.773	5.30	6.28	2.875	0.375	4.75	9.07	10.75	97.4	1,267	263
6	Button-type	0.008	4.740	2.875	0.488	1.14	1.24	2.875	0.500	4.52	10.57	11.44	58.2	165	137
7	Wire-wrapped	0.010	5.210	3.094	3.231	6.38	7.44	2.875	0.500	5.30	10.48	12.21	62.2	475	187
8	Wire-wrapped	0.008	5.250	3.094	2.557	5.01	5.84	2.875	0.500	5.30	10.38	12.12	61.7	1,082	193
9	Wire-wrapped	0.009	5.160	3.063	2.941	5.93	6.85	2.675	0.500	5.30	10.68	12.32	62.7	2,650	254
10	Wire-wrapped	0.009	5.237	3.063	2.841	5.64	6.52	2.675	0.375	5.96	11.82	13.66	123.7	2,455	252
11	Button-type	0.007	4.092	2.875	0.786	2.13	2.30	2.875	0.500	7.85	21.28	23.06	117.1	383	196
12	Wire-wrapped	0.007	5.130	3.094	2.503	5.02	5.86	2.875	0.25×2.5	5.58	11.18	13.06	20.9	482	222
13	Slotted-pipe	0.010	6.000	2.875	0.324	0.60	0.65							350	127
14	Wire-wrapped	0.010	5.075	3.219	3.605	7.03	8.53	2.875	0.25×2.5	5.81	11.31	13.75	22.0	1,907	227
15	Wire-wrapped	0.009	5.170	3.219	3.551	6.79	8.23	2.875	0.375	3.97	7.60	9.22	83.5	1,170	208
16	Wire-wrapped	0.009	4.956	3.156	2.786	5.67	6.75	2.875	0.313	4.45	9.04	10.78	140.6	3,700	268
17	Wire-wrapped	0.009	5.330	3.094	2.842	5.49	6.40	2.875	0.250	3.04	5.88	6.85	139.5	750	239
18	Wire-wrapped	0.007	5.148	3.219	2.950	5.67	6.88	2.875	0.375	6.19	11.88	14.42	130.5	1,682	287
19	Wire-wrapped	0.007	5.130	3.219	2.850	5.49	6.67	2.875	0.375	3.87	7.45	9.06	82.0	1,350	282

for No. 7. However, when packed in sand, the flow rate was only 3 per cent greater for No. 8. The free-flow rate for No. 9 was 2,455 bbls. per day, an increase of 458 per cent over No. 7; and the sand-pack-flow rate increased from 187 to 254 bbls. per day, or 35.8 per cent. No. 10 is identical with No. 9 except for the perforations, which are ⅝ inch in diameter, and the number per foot is practically doubled. This results in a slight increase in area of perforations, but both free-flow and sand-pack-flow rates check with No. 9 within a few per cent. No. 12 is constructed in the same manner as No. 7, with the wire supported on the pipe; but the perforations are in the form of vertical rectangular slots 0.25 inch wide by 2.5 inches long. The free-flow rates of these two screens were practically the same, but the flow rate when packed in sand was 187 bbls. per day for No. 7 and 222 bbls. per day for No. 12—even though the average slot width of No. 12 is only 0.007 inch compared with 0.010 inch slot width for No. 7, and the net slot areas are in about the same proportion.

No. 13 is a slotted-pipe type of screen, with the slots relieved with a wide angle of about 45 deg. Nos. 14 and 15 are identical wire-wrapped screens except for the differences noted in Table 1, and the relative fluid capacities are about as would be expected as a result of the differences in areas of perforations and slots. The wire used on the latter two screens has a T-section, giving a large under-cut effect.

Nos. 16 and 17 are wound on perforated pipe, having the perforations arranged in vertical rows with grooves about ⅛ inch deep connecting all perforations in each row. The wire used on No. 16 had a T-section, and that used on No. 17 was square. No. 16 had the highest free-flow rate of any screen tested, and it is evident that the difference in rates of Nos. 16 and 17 is out of proportion to the difference in perforation area—the slot widths being the same, and slot areas nearly the same. The free-flow rate for No. 16 is 3,700 bbls. per day, or nearly five times as great as the rate observed for No. 17; while the perforation area of the former is only 1.57 times that of the latter. This difference in performance is doubtless explained by the difference in the types of wire. However, as in most cases, this large difference in free-flow rate did not indicate a large difference in the sand-pack-flow rate.

Screens Nos. 18 and 19 were wound with rectangular wire on longitudinal bars which supported the wire about ⅛ inch from the pipe wall. It is noted that the free-flow capacity of No. 18 is less than half that of No. 16, and the sand-pack-flow rate of No. 18 is the highest of the entire group—the sand-pack-flow rate of No. 19 being only slightly less.

In concluding the discussion of the flow tests, it may be said that there is little relation between the effect of design on free flow and on flow when packed in sand; and changes which result in larger free flow will, in general, result in a much smaller effect and, in some cases, an adverse effect on sand-pack-flow rates. This is shown graphically in Figure 5. Free-flow rates varied from 165 to 3,700 bbls. per day per linear foot, or a ratio of 22.4 to 1; while sand-pack-flow rates varied from 127 to 287, or 2.26 to 1. It should be remembered that the ratio of free-flow rates to sand-pack-flow rates is actually much higher than the values shown indicate, because the pressure differential is 50 times as great for sand-pack flow.

It is of interest to compare the sand-pack-flow data on the basis of rates of flow per unit slot area. The screen having the smallest slot area, No. 13, has by far the greatest rate of flow per square inch of slot area, the value being 195 bbls. per day. Screen No. 18, which had the highest capacity of the group, produced only 41.7 bbls. per day per square inch of slot area. The velocities through the slots were 1.82 feet per second for No. 13, and 0.39 feet per second for No. 18. This indicates that the resistance of the bulk of the sand-pack is high in comparison with the resistance of the sand bridges and partly-closed slots when a reasonable slot area is provided.

Several experimental screens of the button type were constructed for test in which 50- by 50-mesh screen wire was used as the screening medium. A 2 27/32-inch-outside-diameter by $\frac{5}{16}$-inch wall pipe with ½-inch perforations was used for holding the strainer buttons. It was found that, for maximum efficiency, the wire should be placed flush with the outside surface of the pipe. In several earlier models the mesh was recessed one-half the thickness of the pipe wall, or 5/32 inch from the outside, to secure added protection for the wire. The sand-pack-flow rate with the button recessed in this manner was only 50 per cent of that obtained with the mesh withdrawn to about 1/32 inch of the outer wall. A perforated pipe of identical dimensions was wrapped externally with the wire gauze, and this arrangement increased the capacity 26 per cent over the second design. This increased resistance, with the screen wire recessed, is doubtless caused in part by the more restricted flow channel through sand to reach the screen—and it is possible that a denser sand bridge is formed under such conditions.

Plugging Tests

When the flow tests were started, it was thought that the screens would gradually become clogged with the finer constituents of the sand when flowing oil constantly in the same direction. When it was found that this did not occur, several attempts were made deliberately to plug the screens with mud. These tests were made with a wire-wrapped screen.

First Test—The first test was made by injecting mud into the flow line leading to the screen-testing chamber at the mud nipple shown in Figure 2. Copper tubes were embedded in the sand-pack for measuring pressures at points 2½ inches and 5 inches from the outer face of the sand and

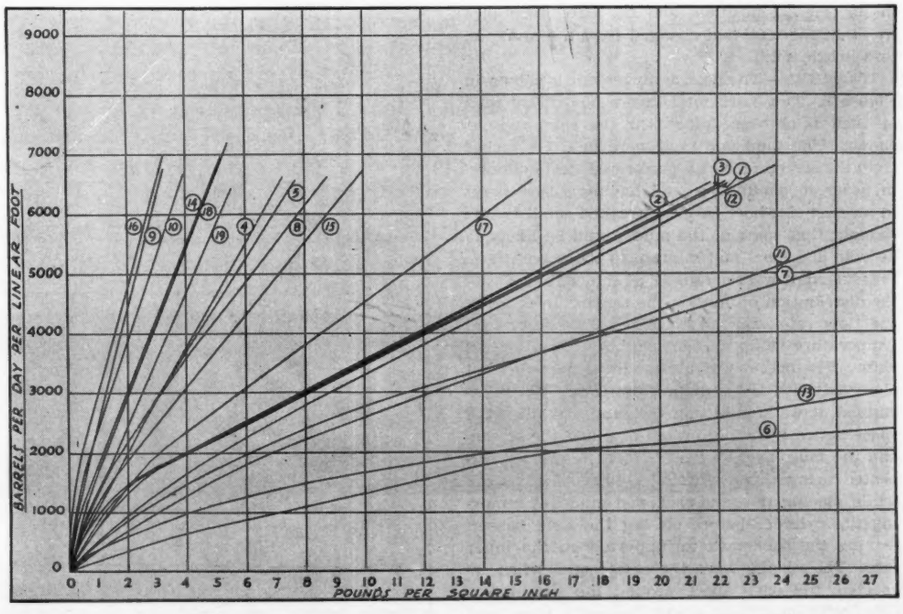


Fig. 4—Free-flow curves of screens tested with oil of 22 centipoises viscosity at 140° F.

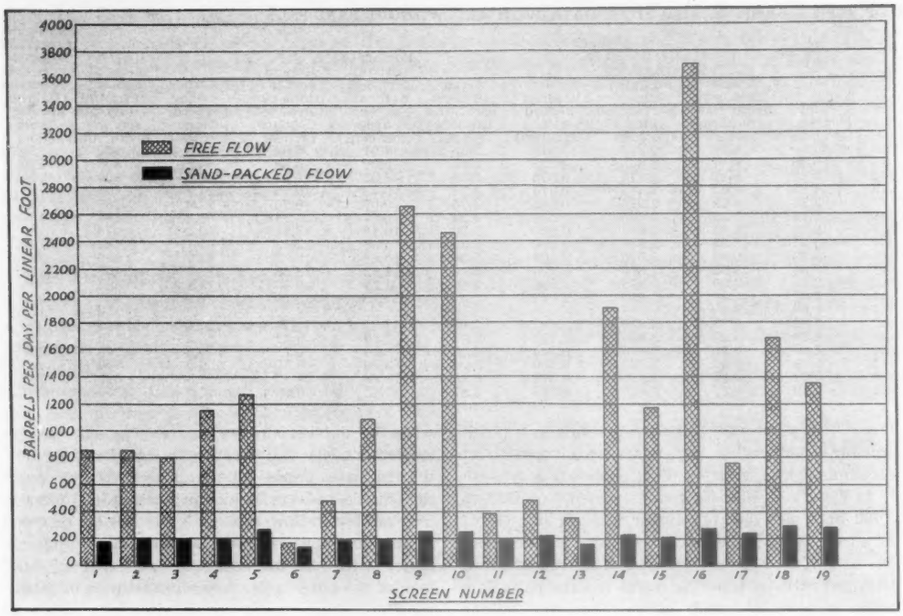


Fig. 5—Comparison of free-flow tests at a pressure differential of 1 pound per square inch with sand-packed-flow tests at a pressure differential of 50 pounds per square inch

at the screen face. Figure 6 shows the quantities of mud injected, the time intervals between injections, and how the flow rate at constant pressure decreased. The pressure gradient showed that the sand pack was being plugged between the outer pressure tap and the outer sand face, and that the mud was not reaching the screen. When the sand-pack was examined at the conclusion of the test, it was found that practically all of the mud was filtered out of the oil within $\frac{1}{16}$ inch of the outer wall of the sand-pack. Traces of mud could be detected to a depth of ¼ inch, but none deeper.

Second Test—The second plugging test was made by circulating the oil through a mud-inlaid sand-pack, as shown in Figure 7. This test was run continuously for about eight days without any significant changes in rate of flow, or in pressure gradients in the sand-pack. When the sand-pack was opened, it was found that the oil flow had no effect on the mud rings. The mud was in its original position, and the only difference was that the mud had changed from a semi-liquid to a brittle solid.

Third Test—The next arrangement is shown in Figure 8. Two horizontal layers of drilling mud ¼ inch thick were placed in the sand-pack as shown. The sand and mud were held 1½ inches from the screen face by a perforated steel cylinder, in order to simulate a well having a screen set in an over-size bore in mud-streaked sand. It was thought that some of the mud would be likely to become dislodged and migrate to the screen face. Pressure taps were arranged, as shown, to indicate the distribution of mud on the screen. In this test the flow rate came to equilibrium when the oil temperature stopped rising and remained at this value. The action was almost identical with that observed with the regular flow tests. When examined, it was found that the sand had filled the space between the perforated pipe and the screen, and the mud layers were intact. The test was repeated using the perforated cylinder for a form while placing the sand-pack and mud but removing the cylinder before closing the sand basket, leaving the sand-pack unsupported on the inner face. The results were the same; and, when inspected, the open space around the screen was filled with sand from above the baffle plate, and the mud streaks were again intact.

Fourth Test—These tests showed that mud embedded in the sand was not easily dislodged, and did not contribute to screen plugging; therefore, an attempt to plug the screen was made by circulating the oil through the sand-pack with a horizontal mud streak and a $\frac{1}{16}$-inch layer of mud placed against the lower half of the outer face of the wall, as shown in Figure 9. A condition somewhat similar to this might be obtained when a well is completed with drilling mud which is not thoroughly removed from the sand face. At a constant pressure of 50 pounds, the screen was plugged sufficiently to reduce the flow to 111.7 bbls. per day per linear foot from a value of 245.4 bbls. when packed in sand without mud. This condition was reached by the time the circulating oil attained a constant temperature, and no further significant changes were noted in about four days' operation. During this time the pressure taps indicated an increase in pressure near the bottom of the screen from 2.2 pounds to 18.8 pounds.

When the screen was examined, the horizontal mud streak appeared to be in the same condition as when placed in the sand-pack; but the vertical lining of mud was deposited on the face of the screen, being thickest at the bottom, and extending to about two-thirds of the height of the screen.

Result of Tests—Probably the most significant result of the plugging tests is the demonstration of the stability of mud streaks when packed in sand, and the fact that mud will not migrate more than a small fraction of an inch through a close pack of this sand. Inasmuch as the sand-pack flow tests indicate that an average screen will have ample capacity for most purposes and remain open indefinitely when packed in clean sand, the most promising solution to the problem of screen plugging appears to be to fill the well cavity around the screen with sand or some similar porous medium which will support the wall and prevent caving of the producing formation. This will prevent colloidal deposits from becoming dislodged and moving to the screen face—where a small quantity of such material may plug a relatively large percentage of the screen. If an adequate sand-pack is provided, such deposits will remain in their original location indefinitely, and will have a relatively slight effect in retarding flow to the well.

In order for an artificial sand-pack to be successful in supporting the wall of a well cavity, it is necessary that the screen be effective in preventing the production of sand over long periods of time. The screen should be of rugged construction to minimize the chances of damage when setting, and to assure openings of the proper size after the necessary handling.

Normal Circulation Method—After completing our tests, which were made in 1933, 1934, and 1935, the arrangement shown in Figure 10 was suggested, in an unpublished report, as a possible means for obtaining a satisfactory sand-pack in a well cavity around a screen liner. Arrangements similar to this have been used successfully for gravel packing, and described along with other arrangements in articles recently published by Wallace A. Sawdon,[1*] and T. P. Sanders.[2] A similar method was described by C. J. Coberly and E. M. Wagner[3] in a paper presented at a meeting

*Figures refer to bibliography.

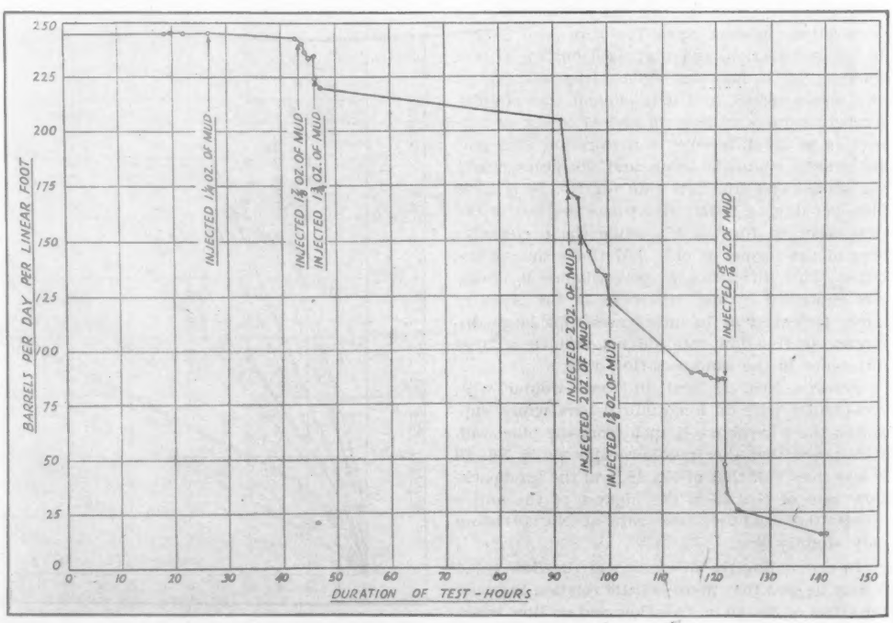

BARRELS PER DAY PER LINEAR FOOT
INJECTED ½ OZ. OF MUD
INJECTED 1⅛ OZ. OF MUD
INJECTED 1⅛ OZ. OF MUD
INJECTED 2 OZ. OF MUD
INJECTED 2 OZ. OF MUD
INJECTED ⅛ OZ. OF MUD
INJECTED ⅛ OZ. OF MUD
DURATION OF TEST - HOURS

Fig. 6—Effect of mud injected into input oil circulating through a sand-packed screen

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of the American Institute of Mining and Metallurgical Engineers, October 1, 1937, in Los Angeles. This paper, entitled "Some Considerations in the Selection and Installation of Gravel-Pack for Oil Wells," describes a series of experiments made to determine the largest grain size practical to use for packing around a screen to prevent migration of the oil sand through the pack, and refers especially to conditions encountered at Oklahoma City—where it is important to use a pack consisting of grains much larger than the formation grain size in order to obtain a large production with extremely-low bottom-hole pressure.

The general arrangement shown in Figure 10 is usually referred to as the "normal circulation method" in which the gravel or sand, and a suitable liquid, is pumped or allowed to flow by gravity through tubing to the lower end of the screen pipe—where it passes through a check valve and into the well cavity. The packing material is trapped in the cavity, and the liquid returns through the screen and casing. When the cavity will not take any more sand, the string of tubing is pulled—and the check valve, shown in the bottom of the string of tubing in Figure 10, will close and prevent any sand or gravel remaining in the tubing from flowing out into the liner and casing. In some cases the tubing may be filled with the packing slurry when the tubing is pulled; and, if it is allowed to flow into the casing, it must be bailed out before starting production. This check valve on the lower end of the tubing, which is held open when the tubing is resting on bottom, is the only essential difference between this arrangement and that described by Coberly and Wagner. This may or may not be an advantage. It would keep the interior of the liner and casing free of the packing material, and would eliminate the necessity for bailing the hole before starting production. This is especially desirable if the grain size of the packing substance is such that it would be pulled into a pump—where the well is to be produced by pumping—as it is not possible thoroughly to clean

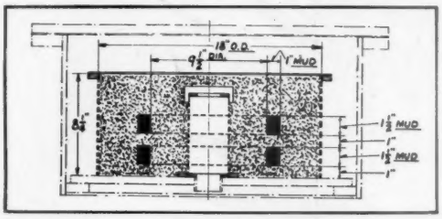


Fig. 7—Plugging test—oil circulated through mud-inlaid sand-pack

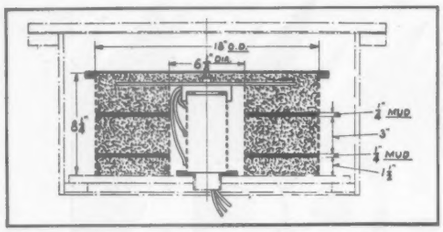


Fig. 8—Plugging test—two horizontal layers of mud ¼-inch thick placed in sand pack

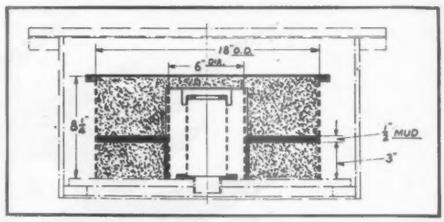


Fig. 9—Plugging test—oil circulated through sand-pack with horizontal mud streak and 3/16-inch mud layer against lower half of outer face of wall

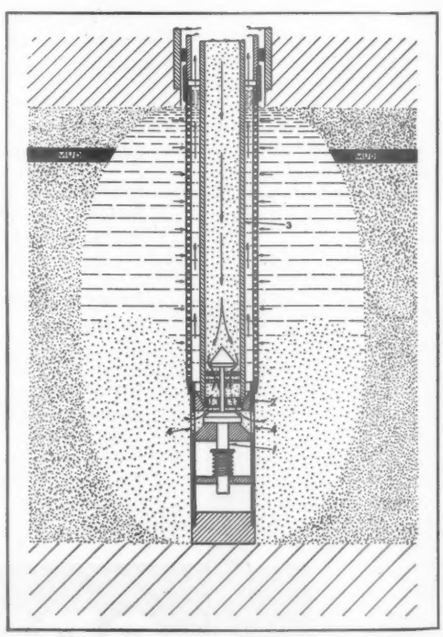
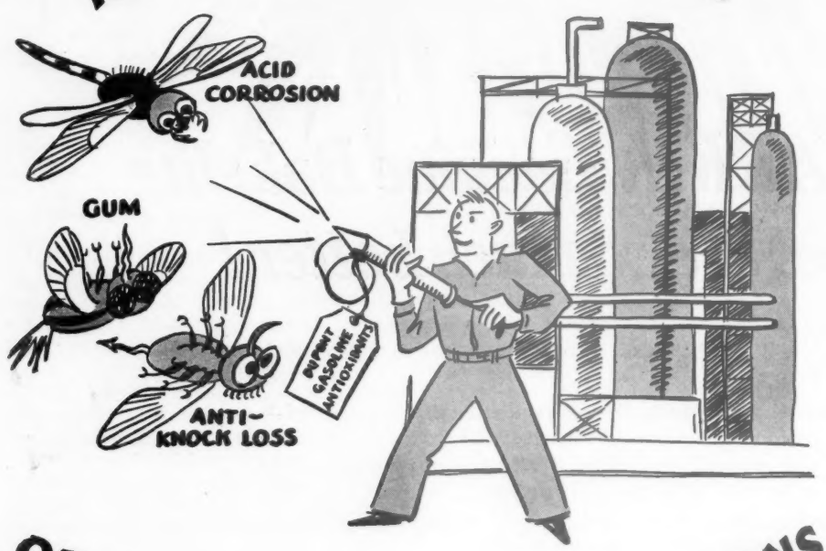


Fig. 10—Suggested "normal circulation method" for placing sand around liner

KEEP THE "BUGS" OUT



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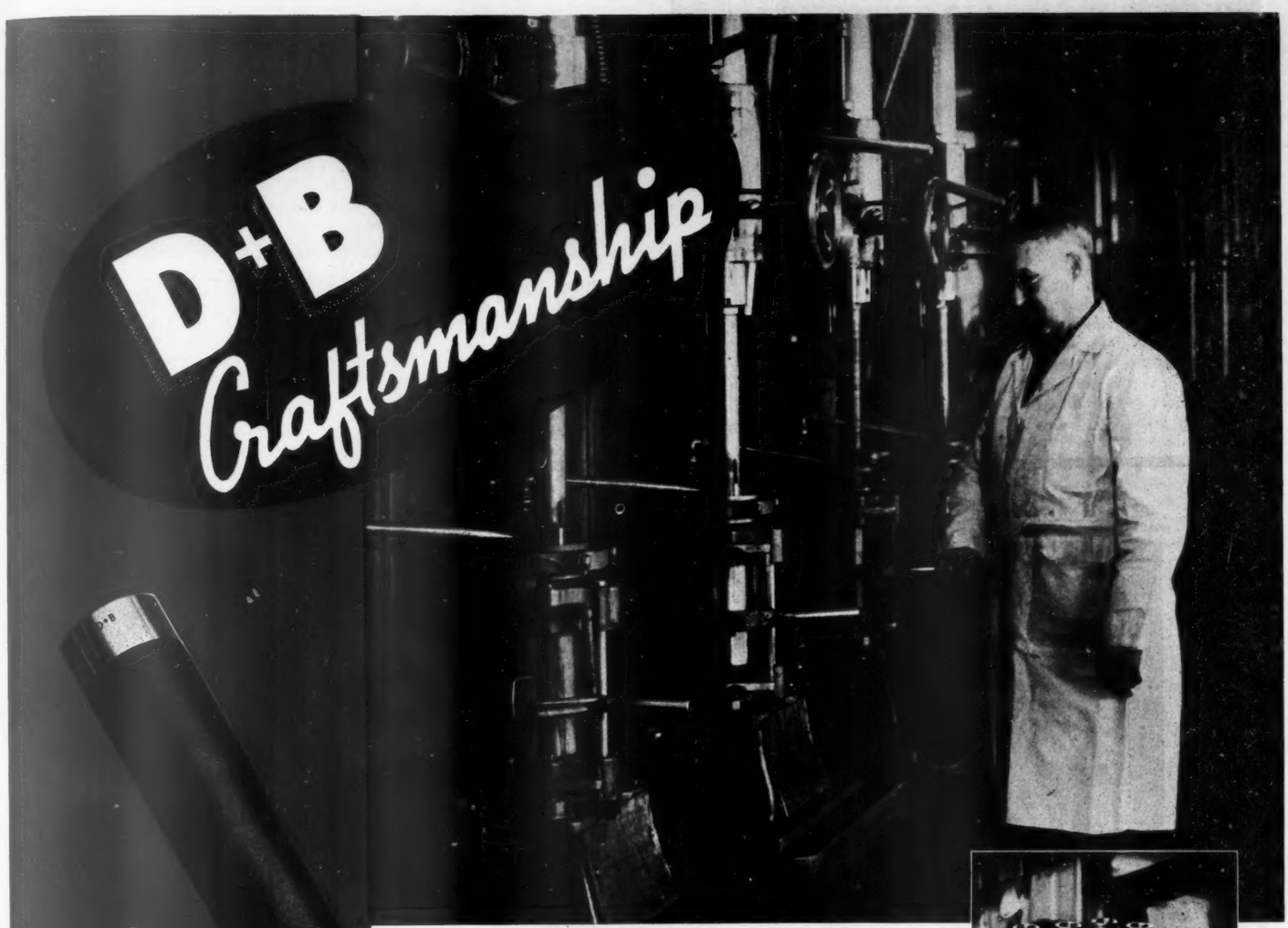

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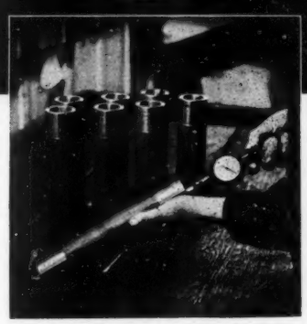

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the casing and liner by bailing, and any coarse sand left in the liner or falling into it when pumping will cause excessive wear of the pump in case it is picked up. The check valve in the tubing will result in a wet tubing job, and provision must be made for catching or disposing of the sand-laden fluid as each tubing joint is broken. However, it is probable that the inconvenience of pulling the wet string will be offset by the bailing operation, and the well will be left in a better condition for pumping by using a check valve in the tubing.

Reverse Circulation Method—The other method that has been used, and which has proved successful in California for gravel packing, is known as the "reverse circulation method." In this method the gravel is introduced between the casing and tubing, and the carrying fluid returns to the surface through the tubing. This method appears to be more hazardous than the normal circulation method because of the danger of the gravel bridging between the tubing, or the upper end of the liner, and the casing. If bridging occurs, it may not be detected until a considerable quantity of gravel has been pumped in to form a very deep and stable bridge—making it difficult, or impossible, to remove the tubing. On the other hand, there may be cases where a better gravel- or sand-pack can be obtained by admitting the packing material at the top of the well cavity and allowing it to settle by gravity in the oil or other fluid in the well. Where the depth of the cavity is very great in relation to the minimum diameter, it may be impossible to fill the cavity by forcing the packing material up from the bottom.

In order to minimize the bridging hazard in case it is desirable to fill the cavity from the top, the arrangement shown in Figure 11 is suggested. The liner is set on bottom and held centered in the casing by vertical guiding vanes, as shown in Figure 11-b. The sand or gravel is lowered to the top of the liner with a special bailer, as shown in Figure 11-a. When the bailer reaches bottom, the cone-shaped valve (1) seats on the top of the liner, opening valve (2)—allowing the

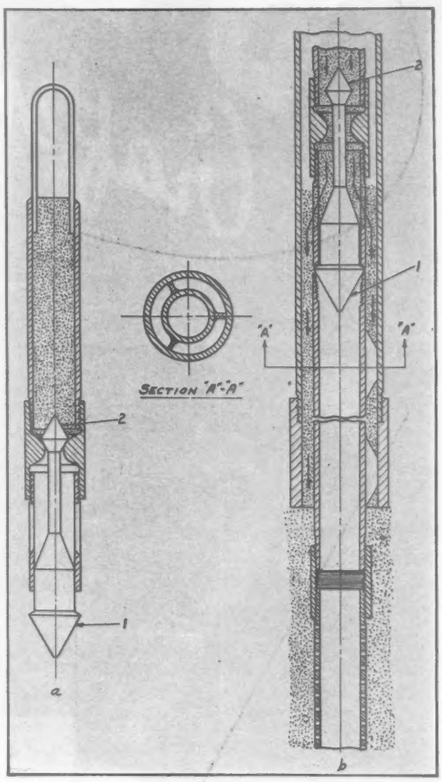


Fig. 11—Suggested method for placing sand around liner with special bailer-type sand conveyor

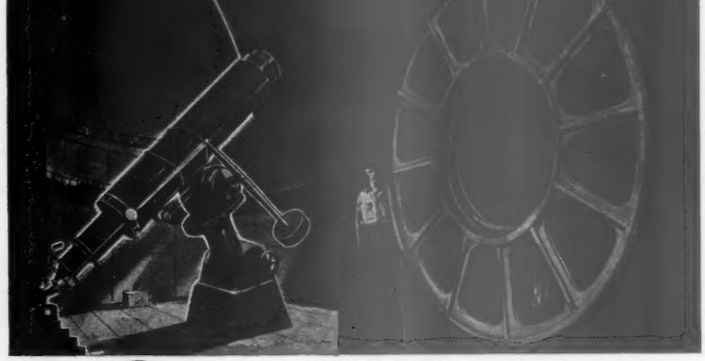
packing material to flow down past the centering vanes to the well cavity. When the cavity is filled, or if bridging occurs, the bailer will not empty—and this will give a definite warning when the level of the pack reaches the bailer valve, and very little excess material will be left in the hole. . . .

Placing Sand Before Running Liner—Another possible method for obtaining a satisfactory pack is shown in Figure 12. In this case the liner would be equipped with a coarse and rugged outside thread, as shown. The well cavity would be filled by means of a bailer or by dropping the packing material through the casing. The liner would be run on tubing and rotated, after contacting the sand or gravel bed, in a direction tending to pull the liner into the pack and loosen the material immediately surrounding the liner, and displace a sufficient quantity of it into the casing by the screw-conveyor action to allow the liner to lower to the desired position.

In conclusion, it should be pointed out that the successful application of a pack of high permeability to the cavity of an oil well producing from a sand formation promises to decrease trouble with screen liners to such an extent that a considerable expenditure in the development of technique suitable for the various fields utilizing screens would be justified. The most obvious benefits to be realized are as follows:

1. Reduction or elimination of sand produc-

(Continued on Page 65)



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Slowly and with extreme care, a 200-inch glass reflector is being ground for the observatory of California Institute of Technology on Mt. Palomar, California. When finished, it will become part of the largest telescope in the world. The special grinding gear for this critical task was cast of MEEHANITE, superior modern metal for extra-heavy, intricate, or otherwise difficult castings. Among the properties obtainable in MEEHANITE are high strength, toughness, uniformity, machinability, heat resistance, wear resistance, corrosion resistance. Costs are relatively low. If you are a user of metals, learn about the recent advancement in castings. Ask about MEEHANITE. Address any of the manufacturers listed below, or Meehanite Research Institute, Vandergrift Building, Pittsburgh, Pennsylvania.

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PROBLEMS FROM READERS

Edited by L. G. E. Bignell

Cementing Casing

I wish to set casing and cement it on top of the sand and I would like to know how it is possible to cement casing if hole has been drilled through the sand and shot.—V. E. S.

It is easy to understand why you might wonder how it is possible to cement casing in the hole after the hole has been drilled below the casing seat and shot. The effect of the shot does not change the actual cementing problems except it might be necessary to clean out to some extent after the shot to provide space below the casing seat for the cementing operation.

There are two generally used cementing methods. One method consists of running the casing to the desired depth and making a 2-inch swage connection at the top of the casing for connections to a two-way stand pipe by means of a flexible high-pressure steel hose. As the hole has usually been drilled by rotary method there is mud in it that has remained after the drilling operation was completed. The casing is run through this mud-filled hole and the mud kept from entering the inside of the pipe by use of a float collar and valve placed at the top of the lowest joint of casing. This valve seats upward and the mud in the hole will hold it shut as the casing is lowered. This operation will displace some of the mud left in the hole and leave mud alone in the annular space between the casing and the hole and also in the open hole below the casing seat.

After the connections are made at the top of the casing the mud pumps are started and clear water pumped down the inside of the casing. When this water has filled the inside of the casing above the float valve it will not pass through that valve because the pressure exerted on the lower portion of the valve by the mud column in the hole exceeds the weight of the water column. The pump pressure is then increased until the water is forced past the valve and flows out of the bottom of the casing and begins to displace the mud in the annular space between casing and hole. This escape of the mud upward is the normal exit for this fluid because the open hole below the bottom of the casing is filled with mud which cannot be compressed and therefore resists flow of additional fluid of any kind into that space. When circulation has been established the mud fluid will flow from the top of the casing and when clear water appears it is known that the annular space has been washed free of mud and is ready to take the cement.

The next step in the cementing operation is to open the top of the casing by removing the swaged nipple and inserting either a rubber or wood plug which fits the inside of the casing snugly. The swage connection is then replaced and the pumps deliver a measured volume of cement slurry into the casing above the plug which slips downward and forces some of the water left in the casing out of the lower float valve and up behind the casing. When the desired volume of cement has been pumped into the casing a second plug is inserted in the casing in the same manner as the first one and the casinghead again closed with the swage connection.

The pumps then deliver mud fluid to the top of the upper plug. The lower plug, the cement between the two plugs and the upper plug slip down the inside of the casing until the lower plug comes to rest directly above the lower float valve. When stopped there the cement will be forced past the lower plug and through the float valve and out of the bottom of the casing. When this body of cement strikes the top of the mud fluid in the open space below the casing seat it can only escape upward by displacing the water occupying the annular space between outside of casing and hole. The pumping of mud continues until the top plug comes to rest above the lower plug and all of the cement has been forced out of the bottom of the casing and into the annular space. This completes the placing of the cement and it is allowed to set a predetermined length of time before the next operation is started.

After the cement has been placed there is some left in the lower joint of casing and in the space immediately beneath the lower end of the casing. There are also two plugs and a float collar and guide shoe in the casing that must be removed. First the soft cement is washed out by pumping fresh water into the inside of the casing. A string of tools is then rigged up and the rubber or wooden plugs drilled out as well as the float collar and guide shoe. The drilling continues after the end of the casing is passed and the cement in the open hole is drilled up and washed out. The mud in the lower part of the hole below the casing is next removed by either bailing, if the well will not flow, or by partial bailing of the fluid from the inside of the casing until the formation pressure is in excess of the hydrostatic pressure exerted against the formation by the fluid inside of the casing. In your case where the well is to be used for an input water well it would be necessary to bail it free of all fluid and debris.

Cementing Technique

When the gas and oil industry adopted the rotary drilling method it was largely because it was applicable to boring in soft sediments such as found along the Gulf Coast, where cable tools were at a disadvantage because the holes tended to cave if left unprotected with casing. As experience was gained, the use of the rotary method was expanded to drill all kinds of formations.

One of the advantages of rotary drilling is to be found in the saving in casing. When a hole is drilled with cable tools it is necessary to run a string of casing and seat it whenever a water-bearing formation has been penetrated and the water escapes into the hole. In drilling with the rotary method, mud is forced into the permeable formations and will seal off gas, water, and even oil sands and also build a mud cake on the walls of the hole which tends to prevent caving of soft formations.

In this way a limited number of strings of casing are used in rotary drilled holes, but it has been found quite necessary to run cement back of at least the lower portion of each string of pipe, because it is set for the life of the well, whereas many of the strings of casing used in drilling cable tool holes are pulled and reclaimed when the well has been completed.

Cementing has been an essential part of running casing in rotary holes, and methods have been developed whereby the control of placement of the cement is quite accurate and as little or as much of the annular space back of the casing string as desired can be filled.

There are other reasons for using cement in gas and oil wells some of them being to provide a permanent seat for casing. To exclude water from the producing sands. To protect the casing against caving walls of the hole, and the corrosive action of infiltrating waters, or external pressures. To protect outside strings of casing from high-pressure gas. To make possible the pulling of intermediate strings of casing after the well has been completed. In rotary drilled wells to seal off formations into which mud fluid has been escaping and causing lost circulation. To plug back for various purposes and to plug off bottom water. In other words, cement is used to form an artificial rock to replace rock removed by drilling.

For the purpose of cementing operations in wells a mixture of good grade portland cement is used without admixtures. Water and in some instances reagents to hasten setting are used in mixing the cement which has the consistency of grout and can be handled with reciprocating pumps and will flow freely until initial set takes place. Cement is usually allowed to set 72 hours for permanent setting before work in the hole is resumed.

The technique of cementing operations has been greatly improved and problems involving the running of cement in holes where relatively high temperatures existed have been successfully solved. Multiple stage cementing is one means of placing cement behind casing in two or more stages so that all of the annular space behind the pipe can be filled regardless of the length of the string of casing. To attempt to force a batch of cement behind the long string of casing without the multiple stage method has resulted in very high pressures being built up at well head and in some instances initial set has taken place in the cement before all of it was placed.

Another new method of cementing casing is known as the "squeeze" job. The casing is run to bottom of the hole and then perforated with gun perforator opposite the sections to be cemented. By use of packers on tubing inside the casing cement is forced out of the lower set of perforations and up behind the pipe to find exit back into the inside of the casing above the upper packer on the tubing. When the cement escapes into the casing through the upper set of perforations it is known the annular space between the two sets of perforations has been filled. It is then possible to continue this method up the string until as much cement has been placed as desired. Later gun perforations may be made opposite producing formations and one or more may be produced as desired. This is quite useful in fields where the production is found in several formations separated by impervious bodies of shale and where it is desirable to produce these different oil sands separately because of difference in formation pressures between the various producing zones.

Plug-back methods used in well repairs have been greatly improved and it is now possible to place cement opposite the water producing portions of an oil-producing sand in such a manner as to reduce the influx of salt water into the well very appreciably and in many instances to completely shut it off.

QUESTIONS ON TECHNOLOGY

By Charles K. Francis, Ph. D., Technical Editor

Forms of Sulfur in Petroleum and Their Chemical Action

There are several possible forms of sulfur occurring in petroleum and I wish you would give me a list of them. Is the chemical activity of each one the same as to corrosive action?—T. M. T.

A list of the possible compounds of sulfur that may be present in petroleum is so extensive that space could not be made available here for the mention of them. The best-known sulfur compounds found in petroleum are the sulfides, mercaptans, thiophenes and sulfonic acid compounds. There has been but little work done in the identification and separation of the petroleum sulfur compounds. It is fortunate that most of the crude oils of the world contain only small quantities of this troublesome element. The paraffin base oils seldom contain more than 0.5 per cent total sulfur, the naphthenic and mixed base oils contain the largest percentages. Most of the high sulfur oils contain a large portion in the form of hydrogen sulfide, or some other simple sulfide, which is not difficult to remove by chemical treatment.

The Library Bulletin of Abstracts has abstracted an article on the influence of sulfur compounds in petroleum, from Oel, Kohle, Erdoel and Teer, which has a bearing on this question. The material following is from this source.

"Sulfur tends to form polar, reaction, and even acid compounds. Even the non-acid compounds like sulfides and disulfides are characterized by easy accessibility of the sulfur atom to chemical action. The thiophene homologs are less reactive because the sulfur is in the ring. The effect of the sulfur content of mineral oils upon their physical properties is small because of the small percentage of sulfur. Sissingh drew attention to the proportionality between specific gravity and sulfur content of crude oils: A Pennsylvania paraffinic petroleum had a specific gravity of 0.815 and sulfur content of 0.08 per cent; Kansas, mixed-base, 0.855 and 0.32 per cent; Beaumont, Tex., naphthentic, 0.912 and 1.75 per cent; and Venezuela, asphaltic, 0.980 and 7.89 per cent. However, the Caucasian oils are naphthenic but at the same time are low in sulfur. According to Friedmann naphthenic oils take up sulfur and form asphalt while paraffinic oils are oxidized by it and hydrogen sulfide is produced. Little is known of the melting and solidifying points of the aliphatic sulfur compounds. The sulfur-containing heterocyclenes are compared below with the corresponding cyclic hydrocarbons from the same tar-oil fraction:

HETEROCYCLENES AND CYCLIC SULFUR COMPOUNDS

	Temperatures, °C. Freezing point	Boiling point
Thiophene	—30	84
Benzene	+6	80
Thiotolene	....	114
Toluene	....	111
Thionaphthene	32	221
Naphthalene	80	228
Thiantrene	158	360

The sulfur compounds have lower solidifying points than the corresponding hydrocarbons. Their boiling points are too close together to be separated by distillation. Aliphatic sulfur compounds boil at a considerably higher temperature than the corresponding hydrocarbons. The result is that the sulfur compounds of a petroleum fraction sometimes have a shorter carbon chain than the hydrocarbons of the same fraction.

"The mutual solubility of two substances depends on the relation of their dipole moments. The more similar the dipole moments the greater the solubility. Organic sulfur compounds, even the symmetrical sulfides, have a clear if not very large dipole moment; and in solvent-refining with a polar solvent they go into the extract. Engler and Ubbelohde reported in 1913 that the sulfur content of Mexican kerosene was reduced by extraction with sulfur dioxide from 0.6 to 0.08 per cent. Furfural, alcohol, aniline, and phenol have the same action. The sulfur compounds are themselves good solvents for mineral oils, gums and resins. Mizuta found that thiophene lowers the aniline point only 60 per cent as much as benzene; but thiophene is only a five-membered ring and benzene is six-membered."

References: Influence of Sulfur Compounds in Mineral Oil, Library Bulletin of Abstracts XI, 58, 1937. Frithjof Schmeling, The Influence of Sulfur and Its Compounds, Oel, Kohle, Erdoel and Teer 13, 273, 1937.

Use of Milliliter and Cubic Centimeter for Petroleum Liquids

What is the difference between a milliliter and a cubic centimeter as applied to containers for oil?—P. B. D.

In all ordinary use of both milliliters and cubic centimeters they are the same. For very accurate work under exacting conditions, especially with respect to pressure and temperature, the milliliter is the term to be used to designate the one-thousandth part of a liter. The cubic centimeter means the same thing in all ordinary measurements of volumes. It is clear that a cubic centimeter will not always equal another cubic centimeter, but a thousandth of a liter is an exact designation. These terms are indicated by cc and ml.

Either term may be used to describe the volume of oil in an oil container. Milliliters are of more significance for scientific purposes than for use when measuring petroleum liquids in a commercial way.

CHEMICALS FOR THE PETROLEUM INDUSTRY

Cresols

(Ortho, Meta, Para)

Use—Solvent extraction for lubricating oils. Special preparations.

Form—White crystalline powder, M—Colorless to yellow liquid, P—Colorless crystalline. All have phenol odor.

Formula—$CH_3 C_6H_4 OH$.

	Ortho	Meta	Para
Specific gravity	1.051	1.042	1.039
Melting point °F.	87	52	97
Boiling point °F.	376	395	295

LIMITATIONS

These compounds are usualy purchased on specifications closely approaching the properties above indicated.

New Specifications Covering the Grading of Transmission Oils

We are informed that new specifications have been adopted for the classification of transmission oils and wish to know if you can furnish the details of the properties required?—T. S. M.

A committee of the Lubricants Division of the Society of Automotive Engineers has been making a study of the transmission oils, with particular reference to viscosity. The result of this investigation is the recommendation for viscosity to be determined at temperatures comparable with conditions of use. The lighter grade, S.A.E. 80, a winter lubricant, should be tested at 0° F.

The committee suggested this classification: "The S.A.E. viscosity numbers for transmission and rear axle lubricants constitute a classification in terms of viscosity and of consistency at low temperatures only. Other factors of quality or character are not considered. The viscosity range and consistency at low temperatures for the several classes of transmission and rear axle lubricants are defined in the accompanying table:

S.A.E. TRANSMISSION OILS

S.A.E. No.	Viscosity Saybolt Univ. seconds/°F.	Special pour per cent (°F.)
80	100,000 @ 0° max.	—20
90	800/1,500 @ 100°	0
140	120/200 @ 210°	35
250	200 @ 210° min.	..

"In the case of S.A.E. 80, the minimum viscosity limit is not specified, since this grade is for use at very low temperatures, at which S.A.E. 90 would be too heavy. The oil company furnishing the lubricant shall be responsible for maintaining a sufficiently high minimum viscosity to provide satisfactory lubrication. In a similar manner the maximum viscosity limit for S.A.E. 250 is not specified since this grade is a special one, for use when S.A.E. 140 is too light.

"In the case of fluid greases made by adding soap or other thickening ingredients to oil, the viscosity number by which the lubricants are classified shall be determined by the viscosity of the oil before the addition of the soap or other thickening ingredients."

The recommendation is that the former classification may be used until July, 1939. These include S.A.E. 90, 110, 160 and 250 for summer; 110 and 160 being replaced by new 140. The 250 grade, for buses and trucks remains, but the viscosity is to be found at 210° F. in place of 100° F.

New York Largest, Nevada Smallest Gasoline Consuming States

We should like to know the quantity of gasoline sold in two states in a year: (1) The state consuming the most and (2) the state using the smallest volume.—B. T. D.

During the past year, 1937, the State of New York used 1,815,562,000 gallons of motor gasoline, the largest volume, and Nevada 37,368,000 gallons, the smallest volume for all states.

These figures are from the American Petroleum Institute, and are thought to reflect the gasoline consumption in accordance with the tax or inspection laws, whether sold for taxable or tax-exempt purposes.

EXPERIMENTS

(Continued from Page 62)

tion, with a corresponding reduction or elimination of sand cutting of screens and fewer screen replacements.

2. Less wear on pumping equipment as a result of less sand production.

3. Greater possible production rate because of the larger effective diameter of opening in the

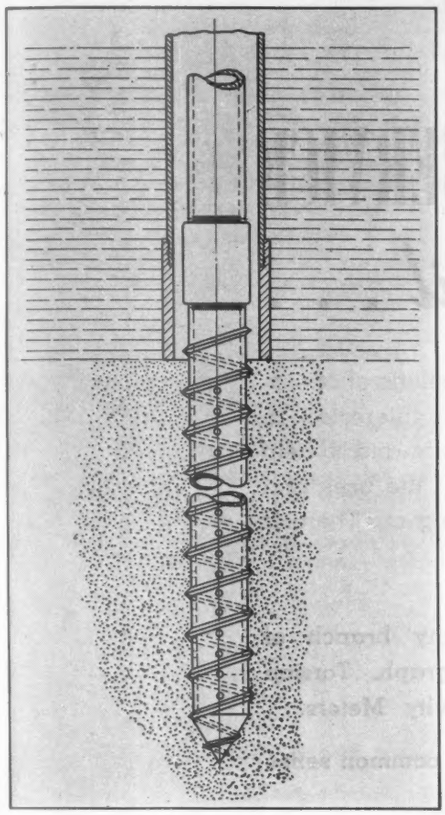

Fig. 12—Suggested method for placing sand before running liner

formation and the coarser material in contact with the screen.

4. Plugging with mud or other colloidal material will be prevented or greatly reduced with a corresponding reduction in clean-out jobs.

The author wishes to acknowledge the direction of Messrs. R. J. S. Pigott and A. A. Lane in planning and carrying out this work, and to express his appreciation to K. L. Kortlandt, formerly of the Gulf Research & Development Co., who conducted a majority of the flow tests described; also to R. L. Kirkpatrick for assistance in the preparation of this paper.

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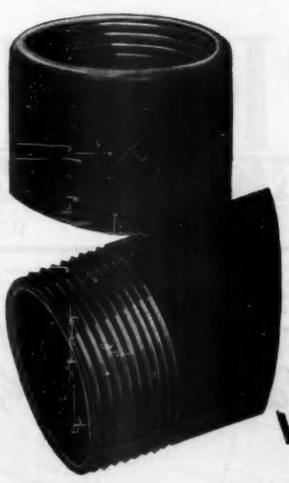

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FIELD OPERATIONS

Summarizing the Week's Developments

OKLAHOMA—Three producers were completed in the Ramsey pool, Payne County, for estimated potentials of 11,000 bbls., 9,500 bbls. and 7,408 bbls. of high gravity oil. A gas pool opener was completed in section 8-1n-2e, Murray County. New wildcats were started in section 4-24-8w and section 17-22-5w, Garfield County, and section 26-16-4w, Logan County. An outpost seeking Dolomite production on the southwest edge of the Oklahoma City field was started in section 28-11-3w.

KANSAS—The Edwards pool extensioner in Ellsworth County made potential of 2,473 bbls. of oil daily. The Gates pool in Stafford County, South Silica pool in Barton County, Chase pool in Rice County and Zenith pool in Stafford County were extended, and the Lake City pool in Barber County was both extended and given a deeper pay horizon.

NEW MEXICO—A pool opener in section 2-22-36, Lea County, averaged 30 bbls. of oil an hour in eight-hour test. Two new outpost wells were started in the busy Vacuum area, two other outposts were showing as possible extensioners to the area and two Vacuum producers were completed. Work was starting at a Lea wildcat in section 29-16-37, 5 miles southeast of Lovington.

TEX-LA-ARK—Two new producing areas were again added in North Louisiana and Arkansas as new gas and distillate reserves were brought in. In the old Shongaloo gas field Magnolia Petroleum Co. No. 1 Sexton Unit was brought in for a large gas-distillate producer at 9,000 feet after failing to find the Smackover lime at a total depth of 10,462 feet. In the Logansport area attention is focused on a wildcat which apparently has opened an important extension to the Logansport gas and distillate field. Two outpost tests to Cotton Valley and Lisbon are attracting attention.

TEXAS—A new pool opener in northeastern Cooke County was an outstanding feature of the week in Texas. The well gauged 220 bbls. in eight hours from a depth of 4,887-95 feet and was rated at 500 to 600 bbls. In the K.M.A. field only 16 completions were made which indicated a continued reduction of field activity. A half-mile south extension on the west edge of production is in prospect. In west Archer County a closely watched wildcat failed to encounter the 3,800-foot K.M.A. pay and is drilling for the Ellenburger. A new gas-distillate pool was opened near Chappel Hill in Smith County. In Southwest Texas preparations were being made to test a well expected to open the third Pettus sand pool in the Laredo district. Several other wildcats in this area are also being closely watched. Interest in the Gulf Coast area was centered on a 13,333-foot well in Terrebonne Parish, Louisiana, as preparations were being made for a production test. A new sand for the Choctaw dome field was opened by a 360-bbl. well.

MICHIGAN—Two wells of 600 and 500 bbls. rating in the Edenville field, Midland County, were features of the week in this state.

CALIFORNIA—Drilling operations appear to be leveling off in the Wilmington field, but renewed activity is marking work in the Torrance and Rosecrans fields. Increased drilling is shown in Montebello and will register a further gain as productive limits are extended westward.

Completions in All Fields

(Week Ending June 4, 1938)

	Oil	Gas	Dry	Total	1938 total comp. to date	1937 total comp. to date
N. Y., Pa. and W. Va.	42	6	5	53	1,765	1,661
Ohio	10	7	15	32	393	440
Indiana	0	0	0	0	38	40
Kentucky	6	1	14	21	335	166
Illinois	27	0	6	33	423	29
Michigan	9	0	9	18	332	371
Kansas	23	2	11	36	764	1,006
Oklahoma	26	1	13	40	741	1,173
Texas:						
North Central Texas	22	1	14	37	1,326	1,206
West Texas	33	0	5	38	991	1,095
Texas Panhandle	9	1	0	10	271	276
East Texas	33	0	1	34	979	915
East Central Texas	1	0	4	5	154	295
East Texas Border	6	0	0	6	75	174
Gulf Coast Texas	22	0	2	24	534	616
Southwest Texas	34	0	11	45	912	1,420
Total Texas	160	2	37	199	5,242	5,997
North Louisiana	8	3	2	13	242	274
Gulf Coast Louisiana	10	0	3	13	207	205
Total Louisiana	18	3	5	26	449	479
Arkansas	6	0	0	6	113	54
Montana	3	0	0	3	34	66
Wyoming	1	1	2	4	73	43
Colorado	0	0	1	1	4	6
New Mexico	7	0	0	7	245	334
Utah	0	0	0	0	0	0
California	16	0	4	20	578	615
Total United States	354	23	122	499	11,529	12,480
Total previous week	413	45	80	538		
Difference	59	22	42	39		

Outstanding Fields--Highlights

(Week Ending June 4, 1938)

FIELD—	Rigs up	Wells drlg.	Weekly oil completions	Initial prod.	Total No. oil wells	Daily av. prod.
TEXAS						
K.M.A.	19	119	9	9,843	439	15,400
Hastings	5	8	3	1,852	537	18,130
West Saxet	1	5	1	157	23	2,210
Saxet	2	7	1	132	602	29,212
Benavides	4	10	7	760	198	9,796
East Texas	30	106	38	2,465	25,214	363,248
Talco	2	6	1	227	635	24,200
Ector County	10	83	13	14,667	1,073	32,550
Winkler County	5	19	3	2,722	1,640	35,547
OKLAHOMA						
Dora	2	7	3	500	65	4,650
Oklahoma City	3	10	3	386	1,082	94,775
KANSAS						
Barton County	3	18	3	2,119	320	8,360
Ellis County	3	14	1	2,587	324	4,625
Rice County	4	17	7	7,378	1,164	22,345
Russell County	4	22	2	4,143	1,079	21,355
NEW MEXICO						
Lea County	13	91	6	710	1,737	84,420
LA-ARK-TEX						
Rodessa, Tex-La-Ark	3	16	8	2,380	989	83,988
Jennings, La.	1	13	2	411	109	19,129
Cotton Valley (deep)	4	24	4	2,495	57	8,140
Lisbon, La.	1	19	1	300	219	8,000
Schuler, Ark.	4	13	4	3,410	60	9,360
MICHIGAN						
Buckeye	5	11	2	150	406	25,848
ILLINOIS						
Central Illinois	28	168	27	7,294	569	34,982
CALIFORNIA						
Wilmington	12	26	4	10,992	471	91,500

Southwest Texas District

By
F. L. SINGLETON

Another Pettus Sand Pool in Laredo District Is Promised

CORPUS CHRISTI, Tex., June 7.—Preparations made by Rowan & Hope to test No. 1 Cuellar Brothers imparted fresh interest this week to an operation in Duval County which is expected to open the third Pettus sand pool in the Laredo district. The hole is bottomed at 5,509 feet and casing has been cemented on bottom preparatory to testing the Upper Cockfield sand at 5,104-36 feet, where a drill-stem test last week showed 500 feet of oil, 49 pounds of pressure, and 120 feet of salt water. Following the test the hole was cored to the Conroe sand (Lower Cockfield), but only a slight show of gas was logged at 5,404-17 feet.

Completion of this well for a commercial producer is expected to intensify an already active wildcatting campaign along this trend, which extends southwesterly through the eastern part of the county. The well is in the B.B.B.&C. Survey No. 96, about 15 miles due south of the Fitzsimmons field, opened last week from the same horizon. The structure was found by geophysical instruments for the Arkansas Fuel Oil Co. which controls most of the acreage in the area. Two locations were made in the newly opened Fitzsimmons pool, and locations for several more are planned. H. J. Porter is starting No. 2 Fitzsimmons, 660 feet east of the discovery, and Phillip C. Haynes has made location for a test out of the NE quarter of section 293. The discovery well, H. J. Porter No. 1 Fitzsimmons, is flowing 111 bbls. a day through a 5/32-inch choke with tubing pressure 385 pounds and casing pressure 1,215 pounds.

Another Shallow Discovery

The district acquired another shallow discovery with the completion of Magnolia Petroleum Co. No. 1 Duval County Ranch Co. On a 12-hour pumping test it produced 37 bbls. of pipe line oil, with no showing of salt water. The hole is bottomed in the Cole sand at 1,190 feet, and casing was cemented at 1,185 feet after a drill-stem test showed 1,100 feet of oil.

Several other wildcats in this district had attracted attention. In Jim Hogg County, Humble Oil & Refining Co. No. 1 Kelsey Bass, San Rafel grant, cored sand having a gas odor at 5,415-45 feet, and shale with streaks of sand having an oil odor at 5,424-45 feet.

In Starr County, Sun Oil Co. cemented 5½-inch casing at 2,765 feet in No. 1 Young, preparatory to making a production test of a probable oil sand indicated on a Schlumberger survey at 1,836-48 feet.

Across the line in Webb County, E. J. Sawyer No. 1 Garcia, Villareal Survey 720, cored broken sand showing oil at 2,465-87 feet.

Frio County Wildcat Watched

In the Balcones Fault Line district, F. L. Thompson No. 1 Davis, a proposed Edwards lime wildcat test in Frio County, attracted attention as a 12-foot saturated section of Austin chalk was recovered. The top of the Austin chalk was logged at 4,933 feet and the recovery was made from 4,964-76 feet.

Ralph Ogden No. 1 Storey, a wildcat in the Henry Warnell Survey, Bastrop County, topped the Austin chalk at 1,753 feet and cored the formation to 1,773 feet.

Red Bank Oil Co. No. 1 Coffield, which loomed as a possible discovery well of an important Edwards lime field in Burleson County, several weeks ago, is being rigged up to pump.

Paul Texas No. 1 McKnight, a wildcat in Dimmit County, completed last week as a gas well, went dead and salt water appeared when the hole was swabbed. The tubing is being pulled preparatory to plugging back and perforating the casing at a higher level.

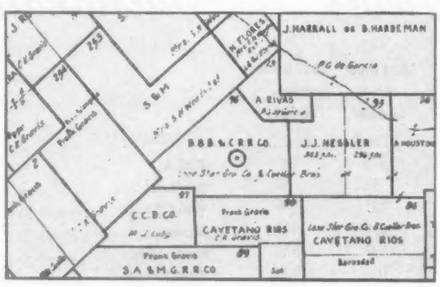
The testing of an outpost test 4,500 feet northwest of production of the newly opened South Alice field, Jim Wells County, was the center of interest in the Corpus Christi area. Conroe Drilling Co. No. 1 Reed & Lindsay was drilled to a total depth of 5,606 feet and is being completed through perforated casing at 5,241-58 feet. A drill-stem test in this section showed 350 pounds of pressure and oil-cut drilling mud. The outcome of this test will have much bearing on the future development in the area.

Northeast of the field about 5 miles Humble Oil & Refining Co. continues to record favorable showings in No. 1 Tarrant. Sand with an oil show was cored at 5,215-19 feet, and on a 20-minute drill-stem test it tested 2 pounds of working pressure and 2,700 feet of salt water.

Prospects of opening a deeper sand in the West Saxet field, Nueces County, were not encouraging as the first production test on Renwar Oil Corp. No. 2-B Kennedy showed salt water.

In the Saxet field, Nueces County, Richardson Petroleum Co. No. 2 Erigan, Lot 40, has been completed for a distillate producer in a new sand at 7,250-7,390 feet.

Plymouth Oil Co. was adding two more producers to the rapidly spreading East White Point field, San Patricio County. No. 1-B Bringham cored oil sand at 5,653-63 feet, the total depth, and 7⅝-inch casing was cemented at 5,663 feet after a drill-stem test showed 15 pounds of working pressure and 1,360 feet of oil-cut drilling mud. No. 2 Owens cored oil sand at 5,681-86 feet and on a 12-minute drill-stem test 1,680 feet of oil was recovered. Casing is being cemented for completion.



Porter Regenold, Maps, Corpus Christi

Rowan & Hope No. 1 Cuellar Brothers, Duval County, is expected to prove the third Pettus sand pool for the Laredo district

COMPLETIONS

Completed wells in proven fields in Southwest Texas field with their total depth and initial 24-hour production of the producing wells were as follows:

Bee County

Plummer field: W. C. McBride No. 5 Schneider, perforated casing 3,060-64 feet, 134 bbls., quarter-inch choke.

Rutledge field: G. C. Ruhman and others No. 1 J. L. Grissom, 3,457 feet, abandoned.

Duval County

Benavides field: Argo Oil Corp. No. 2 Bolte, 5,452 feet, 2½ bbls. an hour, three-eighths inch choke. Circle Oil Co. No. 3 West, sand 5,316-34 feet, 75 bbls., eighth-inch choke. Gravis & Doran No. 7 Puig, 4,801 feet, 90 bbls., eighth-inch choke. Hiawatha Oil & Gas Co. No. 11 Parr, 4,757 feet, 146 bbls., 5/32-inch choke. Hiawatha Oil & Gas Co. No. 7 Southland Life Insurance Co., 5,743 feet, plugged back 4,095 feet, 94 bbls., quarter-inch choke. Navarro Oil Co. No. 5-A Rossi, 5,354 feet, 237 bbls., quarter-inch choke. Standard Oil Co. of Kansas No. 6 Walstad, 5,386 feet, 75 bbls., five-sixteenths inch choke. Standard Oil Co. of Kansas, 4,815 feet, abandoned.

Driscoll field: Continental Oil Co. No. 23-A Sevier, perforated casing 3,344-55 feet, 105 bbls., quarter-inch choke.

Hoffman field: Duval Oil Corp. No. 5 Hoffman, perforated casing 2,734-37 feet, 90 bbls., jetting. Magnolia Petroleum Co. No. 2 Weil, sand 2,789-99 feet, 102 bbls., three-eighths inch choke.

Lundell field: Government Wells Oil Corp. No. 25 Lundell, 1,504-10 feet, 4 bbls. an hour, quarter-inch choke. Magnolia Petroleum Co. No. 19 Duval County Ranch Co., 1,489 feet, 60 bbls. oil, 10 bbls. salt water, pumping. Magnolia Petroleum Co. No. 20 Duval County Ranch Co., 2,483 feet, abandoned. Piedra De Lumbre, 2,418 feet, abandoned.

Seven Sisters field: Douglas Sullivan No. 1 State, 41 feet, temporarily abandoned.

Caldwell County

Branyon field: Tinkle No. 1-A Blackwell, 1,994 feet, abandoned.

Dale field: H. H. Coffield No. 3 Moore, 2,200 feet, abandoned.

Salt Flat field: Ellmag Oil Co. No. 2 Dickerson, 2,723 feet, 34 bbls. oil and 650 bbls. sulfur water, pumping.

Luling field: Prairie Lea Production Co. No. 7-B Merriweather, 2,113 feet, 50 bbls. pumping.

Jim Wells County

South Alice field: H. H. Howell and others No. 3 Lindsay & Reed, 5,420 feet, perforated casing 5,288-5,312 feet, 6 bbls. an hour, eighth-inch choke. Walter Goldston No. 1 Lindsay & Reed, 5,446 feet, perforated casing 5,155-60 feet, wet gas well.

Premont field: Smith & Storey No. 1 Premont, 2,408 feet, abandoned.

Karnes County

South Burnell field: Pettus Oil & Refining Co. No. 1-B McKinney, 3,631 feet, abandoned.

Live Oak County

Ezzell field: Glasscock No. 2 Nueces River Bed, sand 1,461-65 feet, 15 bbls. pumping. Holland Oil Co. No. 6 Matkins, 1,528 feet, 168 bbls., quarter-inch choke.

Nueces County

Luby field: Seaboard Oil Corp. No. 6 Luby, perforated casing 5,066-71 feet, 142 bbls., eighth-inch choke. Seaboard Oil Corp. No. 25 Luby, 5,199 feet, 136 bbls., eighth-inch choke. Seaboard Oil Corp. No. 27 Luby, perforated casing 5,063-67 feet, 145 bbls., eighth-inch choke. Stanolind Oil & Gas Co. No. 6 Spessard, 4,365 feet, 124 bbls., eighth-inch choke.

Saxet field: Magnolia Petroleum Co. No. 1 Cryer, 4,086 feet, 185 bbls., 13½ hours, eighth-inch choke.

West Saxet field: Rand Morgan No. 3-C fee, 5,679 feet, plugged back 3,850 feet, 157 bbls., 5/32-inch choke.

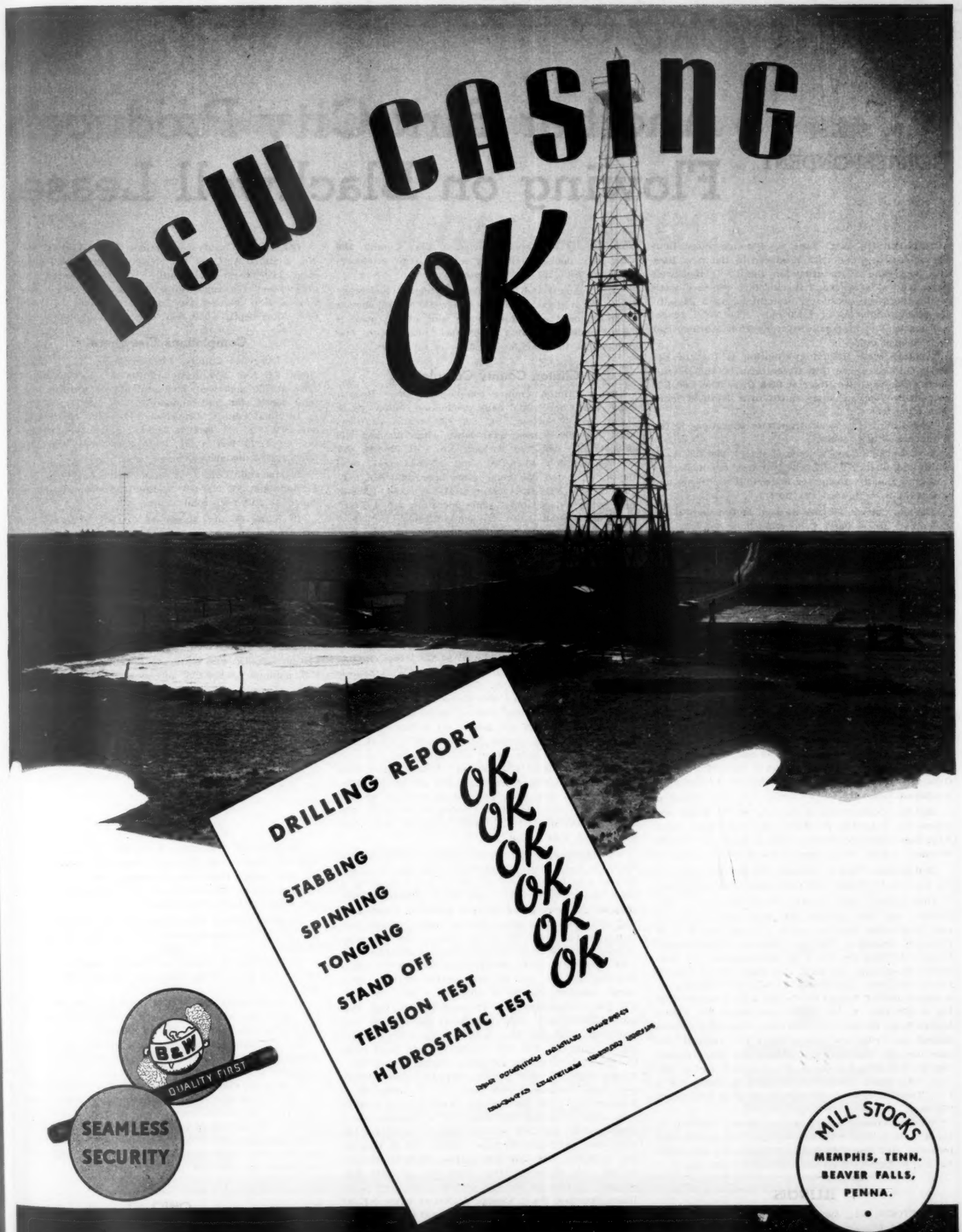
Refugio County

Refugio field: Houston Oil Co. No. 26 Rooke, 6,203 feet, perforated casing 6,191-6,201 feet, 173 bbls., eighth-inch choke. Tomoconnor field: Quintana Petroleum Co. No. 28-C O'Connor, 5,920 feet, 1,203 bbls., three-eighths inch choke. L. A. Nordan No. 16 O'Connor, perforated casing 5,840-48 feet, 481 bbls., quarter-inch choke.

San Patricio County

White Point field: J. K. Culton No. 1 White Point

(Continued on Page 79)



THE BABCOCK & WILCOX TUBE COMPANY BEAVER FALLS PENNA

Central West

By STAFF CORRESPONDENT

Another Birk City Producer Flowing on Blackwell Lease

HENDERSON, Ky., June 6.—Flowing more than 500 bbls. a day, the fifth producer in the new Birk City pool came in Saturday on the C. T. Blackwell lease. The well, the No. 2 Blackwell, is 900 feet north of the Blackwell discovery, brought in April 22 with an initial production of 1,600 bbls. The No. 1 Blackwell started flowing again Saturday after a bridge had been cleaned out.

Another well attracting attention is that of the Major Oil Co. on the Onis Greer farm on the Daviess County side of Green River at Birk City. The well has been drilled with a rotary outfit to a depth of more than 1,200 feet.

Following is the week's report of operations in the Western Kentucky fields:

Breckenridge County, Falls of Rough district, A. V. Smith and others No. 9 Greene Brothers, dry hole.

Butler County, Rochester district, H. C. Darby and others No. 2 E. Mefford, dry hole.

Daviess County, Haynes district, McDonough & Co. and others No. 4 Peter Cooper, 26 bbls. daily in Jett sand at 752-64 feet. Cane Run School district, Chester Oil Co. No. 4 E. Ewing, dry hole, total depth 1,011 feet. W. E. Hupp and others No. 9 Robert Jones, 30 bbls. daily in Jett sand. Utica district, Daugherty & Ellis No. 3 C. E. Leet, dry hole in Jett sand at 1,144-60 feet, total depth 1,165 feet. Red Hill district, Rex Pyramid Oil Co. No. 9 M. D. Yeiser, dry hole. No stray sand.

Henderson County

Henderson County, Birk City district, Snowden & McSweeney No. 2 Francis Dempewolf 40 acres, drilling at 550 feet. Carter Oil Co. No. 1 Francis Dempewolf west tract, moving in. W. E. Hupp and others No. 2 Mrs. Julia Gatewood, cemented casing at 1,870 feet, ready to drill in. Kentucky Natural Gas Co. No. 1 Otis Haynes, dry hole, total depth 2,098 feet, McClosky saturation 1,993-95 feet; rotary moved to No. 1 Mrs. Beulah Gilmore. Clark & Snyder and others No. 1 Tom Palk, abandoned location.

McLean County, Island district, W. E. Hupp and others No. 1 George R. Burks, dry hole, total depth 2,125 feet. Maxwell district, Ellis & Huff No. 2 Yates Brothers, 5 bbls., Stray sand at 941-68 feet.

Muhlenberg County, Bremen district, Peerless Oil Co. No. 1 C. C. Gossett, dry hole. total depth 2,495 feet.

Ohio County, Taffy district, Mecca Oil Co. No. 5 L. Bartlett, dry hole through Jett sand, total depth 570 feet. Sunnydale district, Lewis & Lang No. 7 J. B. Cambron, drilling at 200 feet. Pleasant Ridge district, General Drilling Co. No. 2 R. L. Chapman, dry hole. Fordsville district, Ira Huff and others No. 5 Charles Downs, dry hole, total depth 335 feet; No. 6 moving in. Adaburg district, Leeper Oil Co. No. 2 W. Froman, drilling at 670 feet. G. W. Hardie and others No. 1 Mrs. Nannie Bean, 60 bbls.; No. 2, 45 bbls. Friendship Church district, A. Teller and others No. 6 Coy Medcalf, dry hole through first break in Mississippi lime. Buford district, Edwards & Gregory No. 1 Albert Taylor, dry hole, total depth 1,600 feet. Gregory & Evans No. 1 L. L. Trogdon, dry hole through Jones sand, total depth 970 feet.

Webster County, Sebree district, Powell Drilling Co. No. 4 A. B. Sellers, 1,680,000 feet gas, 330 pounds rock pressure, total depth 900 feet. I. B. Browning and others No. 6 J. R. Ramsey deep test, drilling at 2,000 feet.

ILLINOIS

MATTOON, Ill., June 4.—The Centralia pool of Marion and Clinton counties continued to set a fast pace the past week, its 22 completions giving the remainder of the state something to shoot at. Several other Centralia wells were near completion, and a large number of new tests were reported. Considerable activity also was reported in Clay County, the Clay City pool contributing several large producers to the week's list of completions.

J. G. Bailey and associates had one of the larger Centralia producers at No. 1 Kuhn, SE NE SE section 13-1n-1w, on the Clinton County side of the pool. It had Benoist sand at 1,341-68 feet, total depth, and pumped at the rate of 700 bbls. of oil daily.

Clinton County Completions

Other Clinton County completions, their Benoist sand record and initial daily production, follow: A. B. Ryan No. 2 Fortney, SE SE SE section 12-1n-1w, sand at 1,366-85 feet, total depth, shot, pumped 135 bbls. of oil; Bell-Riley & Lacy No. 1 H. Budde, SW NE SE section 13-1n-1w, sand 1,348-71 feet, total depth, estimated 350 bbls.; same operators' No. 1 L. Budde, SW NE SE section 13-1n-1w, sand 1,358-76 feet, estimated 350 bbls.; same operators' No. 1 Pfaff, NE cor. section 13-1n-1w, sand 1,306-82 feet, estimated 200 bbls.; Kesl & Fox No. 1 P. H. Noe, C S half NW SW NW section 13-1n-1w, sand 1,398-1,403 feet, total depth 1,404 feet, dry and abandoned; E. C. Lehman No. 1 Garbe, SE NW SE section 13-1n-1w, sand 1,353-70 feet, shot, estimated 200 bbls.; S. M. McGee No. 1 Chambers, NE SE NE NE section 13-1n-1w, sand 1,355-85 feet, shot at 1,360-75 feet, estimated 150 bbls.; Self, Deaton & Morgan No. 1 Dodillet, SE SW SW section 24-1n-1w, Wamac sector, ran low structurally and was abandoned at 1,411 feet; Adams Oil & Gas Co. No. 2 Felton, SW NW NW section 1-1n-1w, sand 1,351-66 feet, shot, pumped 42 bbls. of oil in nine hours; Shell Petroleum Corp. No. 4 Koelmel, SW cor. section 1-1n-1w, sand 1,347-70 feet, pumped 103 bbls. of oil; Adams Oil & Gas Co. No. 2 Keister, NE SE SE section 2-1n-1w, sand 1,337-48 feet, shot, pumped 39 bbls. of oil and 5 bbls. of water in six hours, estimated 150 bbls. of oil daily; same company's No. 1 Karlin A, CEL NW SW section 12-1n-1w, sand 1,368-76 feet, shot, pumped 23 bbls. of oil and 35 bbls. of water; Bryant & Cassidy No. 1 Karlin, SW SW SE section 12-1n-1w, sand 1,356-80 feet, shot, pumped 60 bbls. of oil.

Completions in the Marion County sector of the Centralia pool, and elsewhere in the county, were: Capitol City Development Co. No. 1 Home Building & Loan, sand 1,373-85 feet, total depth 1,388 feet, shot, pumped 150 bbls. of oil; Case & Case No. 1 Gentilini, SW NW SW SW section 7-1n-1e, sand 1,370-95 feet, estimated 165 bbls.; Phelps & Johnson No. 1 Dunbar estate, SW NW SW section 7-1n-1e, abandoned at 1,402 feet, total depth; Bell-Riley & Lacy No. 1 Home Building & Loan, NE SW SW section 18-1n-1e, abandoned location; Crosley & Gill No. 1 Mrs. Winkler, SW SW NW section 18-1n-1e, sand 1,350-63 feet, dry, sand 1,363-69 feet, saturation, total depth 1,383 feet, shot, estimated 250 bbls.; J. Q. Gill No. 1 Trust Building & Loan, SW NW SW section 18-1n-1e, sand 1,338-65 feet, shot, estimated 450 bbls.; Koenig & Son No. 1 Busse, NW NW SW section 18-1n-1e, sand 1,346-84 feet, shot, estimated 400 bbls.; C. E. Long No. 1 Krueger, NW NW SW section 18-1n-1e, sand 1,351-80 feet, shot, estimated 250 bbls.; R. A. Lincoln No. 1 Yunker, NW NW NW section 18-1n-1e, sand 1,371-92 feet, shot, estimated 90 bbls.; Adams Oil & Gas Co. No. 1 Ingles, NW SW NE section 28-4n-1e, Patoka, an old well, deepened from 1,436 feet to 1,440 feet, pumped 18 bbls. of oil and 40 bbls. of water; R. H. Brian, trustees, No. 1 George A. Natter heirs, NE SE SE section 29-4-1e, Bethel pay 1,430-45 feet, total depth, shot, pumped 130 bbls.

Pure Oil Co. No. 1 Bunn A, C E half SW SW section 16-2n-8e, south end of the Clay City pool, Clay County, had pay at 3,009 feet, was bottomed at 3,042 feet, and flowed 1,099 bbls. of oil daily.

Other Clay County completions were: Pure Oil Co. No. 1 Bunn A, C W half NE NW section 16-2n-8e, sand 3,003 feet, total depth 3,050 feet, flowed 582 bbls.; same company's No. 4 Scrugham, C E half SW NW section 9-2n-8e, pay series beginning at 2,975 feet, total depth 3,030 feet, flowed 893 bbls.

Completions Elsewhere

In Lawrence County, Edward Geick No. 1 Guthridge, SE NW NW section 29-3n-12w, Lawrenceville area, an old pool well, had sand pay at 1,919-36 feet, total depth, shot and pumped 66 bbls. of oil.

In Bond County, Universal & Demayo No. 1 Molden, NW NE SW section 24-6-4w, had Devon formation at 1,970 feet, total depth 2,045 feet, and was temporarily abandoned.

In Macoupin County, Amerada Petroleum Corp. No. 2 Snedecker, SE NE SW section 15-8n-8w, was abandoned at 550 feet, total depth.

In White County, Mazda Oil Co. No. 1 Meade, NE cor. section 26-5s-9e, was dry and abandoned at 3,210 feet, total depth.

In Richland County, Ohio Oil Co. No. 4 Arbuthnot, NE NE NW section 8-3n-9e, an old well, was deepened from 2,953 feet to 3,000 feet and pumped 55 bbls. of oil daily. Same company's No. 5 Arbuthnot, NW NW NE section 8-3n-9e, an old well, was deepened from 2,979 feet to 3,004 feet, and pumped 434 bbls. of oil daily. Pure Oil Co. No. 12 Coen, C E half SW NW section 9-3n-9e, was bottomed at 3,000 feet, acidized and pumped 12 bbls. of oil in 12 hours.

In Fayette County, Carter Oil Co. No. 1 Logsdon, SW NW NE section 15-8n-3e, Beecher City area, had Benoist sand at 1,486-1,504 feet, total depth 1,505 feet, was shot and pumped 93 bbls. of oil; same operator's No. 1 Cummings, NW NE NE section 21-8n-3e, had sand at 1,583-1,602 feet, total depth 1,606 feet, was shot and pumped and flowed 312 bbls. of oil daily.

INDIANA

PRINCETON, Ind., June 4.—A shallow dry hole in Spencer County was the only completion reported in the past week's round up of Indiana operations. Drilling progress in nine counties of the southwestern quarter of the state are listed below:

In Perry County, Frank Damron was drilling at 400 feet in No. 1 Gramelspacher, NW cor. NE NE section 18-6s-3w.

In Pike County, Claude L. Trussler, made a location for No. 2-A R. E. Craig estate, NE cor. SW NE section 23-1n-7w.

In Vigo County, Carter Oil Co. set 8⅝-inch casing at 135 feet in No. 3 R. L. Drake, C S half NW NW section 15-10n-10w, total depth of the hole 140 feet.

In Vanderburg County, Vandenburg Oil Corp. spudded No. 8 Hornby, SW cor. NW SW. SW section 33-5s-10w.

In Sullivan County, Felmont Corp. No. 1 Riggs, SW cor. SE NW section 36-8n-9w, was drilling below 3,688 feet. H. D. Williams, trustee, was drilling at 373 feet in No. 1 Pierson, NW cor. SE SE section 15-7n-10w; A. S. Reed and others No. 1 Springer, NW NE NE section 2-7n-10w, topped Devonian limestone at 2,623 feet and drilled to 2,750 feet, and shut down.

OHIO

FINDLAY, Ohio, June 6.—The Oriskany test in Sutton Township, Meigs County, appears to be dry so far as the Oriskany is concerned. The Tyree No. 1 Minnie Mallory, section 16, in the village of Racine, found 8 inches of Oriskany sand 120 feet in the lime at 3,814

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feet. Only a bubble of gas was shown. They are still drilling at 3,851 feet. Some gas was encountered in the Ohio shale which may be given a shot later.

In Ross County, Union Township, Glenwood Oil & Gas Co. No. 1 Glenwood Park farm, 8 miles northwest of Chillicothe, found the top of the St. Peter formation at 2,619 feet. A very small show of oil and some water were encountered 15 feet in. They are now drilling at 2,672 feet.

In Athens County, Bern Township, Bern Oil & Gas Co. No. 16 W. G. Selby, section 30, was a dry hole at 925 feet. In Carthage Township, C. W. Nuzum No. 1 J. B. Niggemeyer, fraction 24, is a gas well gauging 250,000 feet at 750 feet. In Lodi Township, E. N. Williams No. 1 Joe Shuler, section 5, is good for 85,000 feet of gas in the second Berea sand at 1,730 feet.

In Guernsey County, Washington Township, Jones & Jewell No. 1 T. H. Lewis, section 14, found the Gordon sand broken and dry at 1,660-75 feet, total depth 1,700 feet.

In Holmes County, Washington Township, Ohio Fuel Gas Co. No. 1 J. B. McKinley, section 18, made 600,000 feet of gas from the Clinton sand at 2,893-2,902 feet.

In Huron County, Bronson Township, McCorkill No. 1 F. H. Burras, section 1, Lot 14, made a barrel of oil the first day after a shot from the lime at 738 feet.

In Licking County, Newton Township, J. Bebout & Son No. 1 Levi Lynn, fourth quarter, was dry in the Berea sand at 639-49 feet.

In Lorain County, Avon Township, Harry Dempsey No. 1 Cleveland Trust Co., section 28, was drilled to 2,434 feet and abandoned. In Carlisle Township, McMillen No. 1 Paul Rolling, section 23, gauged 844,000 feet of gas from the Clinton sand at 2,303 feet. In Ridgeville Township, William Dempsey No. 3 J. H. Lyons, Lot 42, found the Clinton sand dry at 2,374-84 feet.

In Medina County, Chatham Township, Preston Oil Co. No. 24 B. B. Parent, Lot 5, Tract 16, made 17 bbls. of oil first 24 hours after a shot from the Berea at 241-304 feet. In Liverpool Township, Baldwin No. 1 B. A. Bidle, section 16, was dry in the Berea at 310-62 feet.

In Muskingum County, Harrison Township, Gas Producing Co. No. 1 E. F. Boyce, section 2, is a gas well gauging 500,000 feet from the Clinton at 4,246-77 feet.

In Washington County, Liberty Township, White & Petty No. 1 Lina Koon, section 16, was dry in the Injun sand at 1,471-1,518 feet. In Marietta Township, Hupp & Yerian No. 9 Washington County Infirmary, section 11, is a 1-bbl. pumper from the Mitchell sand at 485-97 feet.

Michigan Field Report

By O. C. PRESSPRICH

Chapman Completes Leading Producer in Edenville Field

SAGINAW, Mich., June 6.—Leading the Edenville production of the week was Chapman Oil Co. No. 3 State, SE NW NE section 27-16n-1w, which was considered a rival of the best in the field. The test was pinched in to a steady flow of 30 bbls. an hour and was rated at better than 600 bbls. daily. Acid treatment was not to be applied as long as the flow continued steady. The No. 3 State is in the discovery area of the field.

Mammoth Producing & Refining Corp. No. A-2 Ricket, SE SE NW section 27, was the second producer of the week in the Edenville area. The test was estimated at 500 bbls. after acid, although an accurate gauge was lacking.

Drilling and new production in Michigan fields hit a holiday slump over the Memorial Day week-end, although Midland County's Edenville pool, question-mark of the state's fields, drew attention with three favorable producers and as many more nearing the pay zone as the new week began.

Aside from the heavy Edenville play drilling practically was suspended over the holiday week-end. Allegan and Buckeye each recorded two completions. Three dry holes were scheduled for abandonment in Allegan.

Sun Oil Co. completed one favorable test in the Edenville pool, and another was expected to reach the pay zone momentarily. The completion was No. B-3 State-Edenville, NW SE NE section 27-16n-1w, which ceased drilling at 3,793 feet with a swab test of 55 bbls. in one hour. Later the test declined to a flow of about 350 bbls. over a 24-hour period, and tubing was being run for acid treatment. Large volumes of gas were reported. Sun's No. B-5 State-Edenville, NE NW SE section 27, ran 5-inch casing at 3,743 feet, and was due to drill into the Dundee limestone. The No. B-4 State-Edenville, SW SE NW, was reported drilling below 3,300 feet and was due to hit Dundee limestone this week.

From indications of the past week, the Edenville pool is headed for a run of producers in the discovery section, although cautious extension of boundaries is apparent.

Three other Edenville tests appeared headed for completion within a week, barring delays. They are Gordon Oil Co. No. 2 Verity, NE SW NW section 26-16n-1w, offset of the successful Gordon No. 1 Verity; Mammoth Producing & Refining Corp. No. 1 Caplin, SW NW NW section 26, and Turner Petroleum Corp. No. 1 Verity, SW SW NW section 26.

An important wildcat extension test to the south of the Edenville pool was Sun Oil Co. No. 2-A State-Jerome, NE NW NW section 2-15n-1w. The B-2 State-Jerome, SW SW NE section 9-15n-1w, also was nearing the pay zone. Both were due to test Dundee limestone within a week, and indicate possibilities of extension of the Edenville pool into Jerome Township.

Inspired by the recent oil strike in nearby Tuscola County's Akron Township, oil exploration is to be begun at once in Sand Beach Township of adjacent Huron County, it was revealed by the state conservation department's weekly list of drilling licenses. The well will be put down by Dale Leonard Prospecting Co. of Alma on the Huron Milling Co. lease in the outskirts of the city of Harbor Beach. This is the first actual step toward follow up of the Akron strike, which found a commercial producer, about 30 bbls. a day, in the Monroe stratum.

Allegan County led the week's drilling list with eight permits, scattered through five townships. Three permits went to Gladwin County, two to Midland County and one each to Huron, Clare, Isabella and Ogemaw counties.

Gladwin County—Buckeye Township

Two producers were added to the prolific Buckeye field during the week. Sun Oil Co. No. 1-B Strohkirch, NE NW NE section 9-18n-1w, a western extension in the south part of the north (Wicklund) pool, was acidized to 100 bbls. daily. T. F. Caldwell No. 1 Emmott, SE SE SE section 12-18n-1w, on the eastern edge of the north pool, was rated a 50-bbl. daily producer after acid. F. O. Whitelow No. 1 Campbell, NE NW SE section 27, western outpost of the south (Oard) pool, reported a revised gauge of 600 bbls. daily after acid. The test was estimated a week ago at 500 bbls. Three tests are expected in production in the south (Oard) pool within a week, all in proved production areas.

Hay Township

Failure was logged the past week at Chatham Oil Co. No. 2 Knight, NE SW SW section 16-18n-1e, where the Dundee carried only a small show of oil, not considered of commercial worth. The test will be abandoned. Hay Township is on the southeastern edge of the North Buckeye pool.

Allegan County—Dorr Township

Columbia Oil & Gas Co. completed two producers in Dorr Township the past week to continue Allegan production. The No. 1 Richter, NE NW SE section 30-4n-12w, rated 100 bbls. daily production after acid, and No. 2 Siewald, SW NE SW section 29-4n-12w, was rated at 25 bbls. daily.

Monterey Township

Two of the three dry holes drilled in Allegan County during the week were in Monterey, in widely separated sectors. Leo Brown No. 1 Spray, SE SW SE section 3-3n-13w, was a dry test, as was T. F. Caldwell, Inc., No. 1 Bendel, SE SE SW section 27-3n-13w.

Cheshire Township

Hubbell Oil Co. No. 1 Kage, SE NW NE section 24-1n-14w, was completed dry and scheduled for abandonment.

Ogemaw County—Richland Township

Great West Petroleum Co. No. 2 Mills Estate, SE SE SW section 31-21n-4e, added a producer to the most northerly Michigan oil pool last week, being rated at 80 bbls. daily after acid. Weber Oil Co. No. 1 Jensen, NE SW SW section 35-22n-2e, West Branch Township, was expected in production after several days of Dundee testing the past week.

Isabella County—Sherman Township

Pure Oil Co. No. 4 Latham Heirs, NW SE SE section 32-15n-6w, added another producer to western Isabella County with a Monroe production of 45 bbls. daily natural. The No. 4 is an east offset of a dry test, and operators were cautious about penetrating the pay zone. The test is scheduled for acid soon. Five other tests, all owned by Pure Oil Co., are drilling in the sector.

Fremont Township

Results of the first confirmation test in the Fremont area are being awaited at Bell & Marks second well, in SE NW SW section 8-13n-5w, which completed erection of a rig last week. The latest test is three-quarters mile south and a half-mile west of the same company's Fox Sisters test, discovery well in the area, which hit Monroe production rated at 50 bbls. daily in section 5. The second test of Bell & Marks is 1 mile directly north of the same company's project which last year drilled into Dundee water on the Delo farm in section 17.

Montcalm County—Home Township

Drilling was scheduled to be renewed this week at Leslie Barber No. 1 Nielson, C SW section 14-12n-6w, a gas test shut down for some time. The test is about half a mile northwest of Socony-Vacuum company's recently completed and unsuccessful Dundee oil test in section 22, which passed an estimated 5,000,000 feet of gas in the Michigan "stray," but continued for oil. The Socony test was plugged back and now is providing the Barber test with fuel.

Midland County—Larkin Township

Exploration of the Larkin area as a possible oil-bearing location attracted interest last week at Franklin Development Co. No. 1 Sias, NW NW SW section 32-15n-2e, where the drill had penetrated 43 feet in the Dundee limestone, to a depth of 3,728 feet, with no indication of oil. Drilling continued, and the test was expected to reach a pay zone this week.

Kansas Developments

By
DAL DALRYMPLE

Six Pools Given Extensions; New Pay Zone at Lake City

Extensions were frequent in Kansas the past week, the producing limits of at least six state pools being enlarged. These included Continental Oil Co. No. 1-B Steinberg, C NW section 27-17-8w, which extended the Edwards pool three-fourths mile north in Ellsworth County. The pool straddles the Ellsworth-Rice County line. The outpost made potential of 2,473 bbls. of oil daily from Arbuckle lime topped at 3,214 feet, total depth 3,247 feet.

Magnolia Petroleum Co. No. 1 Gates, NE cor. section 35-21-13w, gave the Gates pool of northern Stafford County a one-half mile extension to the southeast. Arbuckle lime was topped at 3,649 feet, 7-inch casing was set at 3,649 feet and the hole was bottomed at 3,656 feet. Oil rose 2,600 feet in the hole in three hours after drilling the plug. It proves a large area between the Gates and Drach pools.

The Lake City pool in Barber County was given a one-fourth mile southeast extension at Pryor & Lockhart, Inc., No. 1-C Gant, NE cor. section 18-31-13w. It was showing 2 bbls. of oil an hour and gas estimated at 4,000,000 feet daily, but operators were having difficulty in completing due to cavings. It topped Wilcox sand at 4,535 feet, and drilled 1 foot into the sand. It not only extends the pool but uncovers a new pay horizon, as the No. 1-A Gant, C SE section 7-31-13w, discovery well, produces from Viola lime. The only other well drilled in the pool, same operators' No. 1-B Gant, SE SE NW section 7-31-13w, was dry in Arbuckle lime, and abandoned.

The South Silica pool, Barton County, was extended one-half mile westward at Indian Territory Illuminating Oil Co. No. 1-B Bryant, NE NE NW section 26-20-11w. It had Arbuckle lime at 3,264 feet, total depth 3,371 feet, and swabbed 31 bbls. of oil an hour for eight hours. It was to be tubed and acidized.

C. H. Weaver and others No. 1 Handy, NE NE SE section 30-19-9w, extended the Chase pool in Rice County one-half mile westward. It made potential of 228 bbls. of oil daily from 3,280 feet, total depth, in Arbuckle lime.

Stanolind Oil & Gas Co. No. 1 Sims, SW SW NE section 11-24-11w, extended the Zenith pool, Stafford County, one-half mile northward. It flowed 101 bbls. of oil the first hour from Misener sand, and after being shut in one hour flowed 171 bbls. of oil in two hours. It was bottomed at 3,756 feet.

Several new wildcats were reported the past week. They included the following: H. V. Elwell and Trees Oil Co. No. 1 Bair, SE SE NW section 34-10-19w, Rooks County; Haines and others No. 1 Dorr, SE SW section 13-9-16w, Rooks County; Joe Aylward and others No. 1 Solback, SE NE section 3-14-14w, Russell County; Rex & Morris No. 1 Newby, SW SW SE section 16-26-7, Butler County; Rush and others No. 1 well, C section 21-24-8w, Butler County, and Darby Petroleum Corp. and others No. 1 Lyons, C NW SE section 2-20-8w, Rice County. Several outposts that will extend proven areas if completed as producers also were reported for the first time.

Wildcat Completions

Carey and others No. 1 McPheeters, NE NE NW section 22-26-8w, wildcat southeast of the Lerado pool in Reno County, found Simpson sand at 4,292 feet, had a hole full of water at 4,300 feet and was abandoned.

Champlin Refining Co. No. 1 Reeves, SW cor. section 29-20-14w, Barton County wildcat, topped Arbuckle lime at 3,637 feet, had spotted shows of oil in cores but was dry and abandoned at 3,656 feet, total depth, in shale and Dolomite.

Atlantic Refining Co. and associates No. 1 Berg, NE NW NW section 22-26-14w, wildcat in Pratt County, had Simpson sand at 4,459 feet, Arbuckle lime 4,536 feet, nothing was showing and it was dry and abandoned at 4,562 feet, total depth.

George Hinkle and others No. 1 Wesseler, SE NE NW section 34-18-10w, Rice County wildcat, topped Conglomerate at 3,185 feet, Quartzite 3,247 feet, missed Arbuckle lime and was dry and abandoned at total depth of 3,260 feet.

Hollingsworth Brothers No. 1 Wolfe, NW SW SE section 14-4-8w, wildcat in Jewell County, was reported temporarily abandoned at 100 feet, total depth.

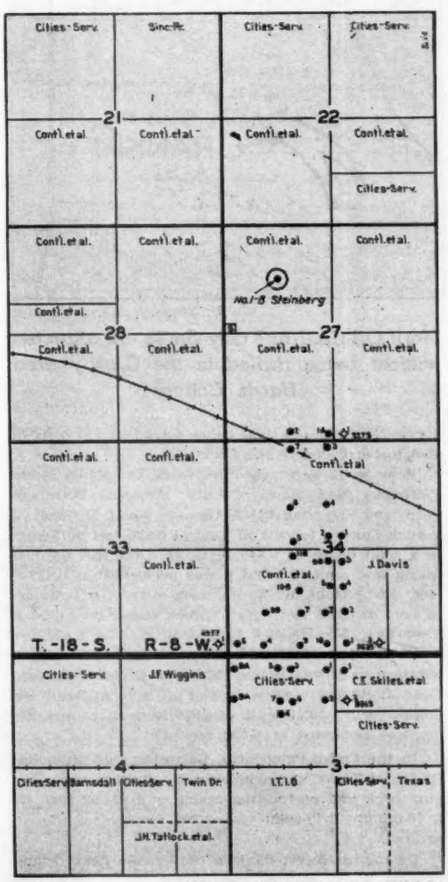
Bennett & Abels and others No. 1 Glass, SE SW NW section 14-25-3e, Butler County wildcat, had Mississippi lime at 2,739 feet, had a small showing of oil and water and was abandoned at 2,782 feet, total depth.

J. C. Foulds No. 1 Ehnen, CSL SE SE section 33-23-9w, Reno County wildcat location, was reported abandoned.

Barnett and others No. 1 Adams, NW NW SE section 22-34-30w, outpost in Meade County, was reported abandoned at 69 feet.

Rice County

Continental Oil Co. No. 1 Ainsworth A, NW SW NW section 30-18-7w, was dry and abandoned at 3,221 feet, total depth.



Mid-Continent Map Co., Wichita

The Edwards pool of Ellsworth-Rice counties was extended northward at Continental Oil Co. and others No. 1-B Steinberg

Continental Oil Co. No. 1 Lewis, NE cor. section 14-18-8w, Geneseo district, Rice County, topped pay at 3,233 feet, total depth 3,242 feet, and was rated initially at 1,455 bbls. of oil daily.

Same company's No. 1 Pickerill, NE NW NE section 24-18-8w, averaged slightly more than 28 bbls. of oil an hour, producing 2,138 bbls. of oil in 76 hours. Pay was topped at 3,192 feet, total depth 3,224 feet.

Mid-Plains Oil Co. No. 4 Hauschild, SE NW SE section 10-21-7w, Wherry pool, was a 15-bbl. well at 3,386 feet, total depth. Pay was found at 3,367 feet.

Same operator's No. 1 Whinery, C W half W half NE section 10-21-7w, topped pay at 3,363 feet, was bottomed at 3,377 feet, and had initial production of 741 bbls. of oil daily.

L. E. Douglass Oil & Gas Co. No. 5 Hauschild, SW SW NW section 15-21-7w, was rated at 1,089 bbls. of oil daily from pay topped at 3,374 feet, total depth 3,382 feet.

Magnolia Petroleum Co. No. 6 Bayer, NE SW NW section 7-20-10w, Silica district, had pay at 3,320 feet, was bottomed at 3,322 feet, and pumped 346 bbls. of oil in 24 hours.

Skelly Oil Co. No. 2 Volkland B, NE SW NW section 5-18-10w, Stumps area, found Arbuckle lime at 3,002 feet, was bottomed at 3,012 feet and made potential of 3,057 bbls. of oil. Gas gauged 5,000,000 feet.

Barton County

Stanolind Oil & Gas Co. No. 4 Stuckemann, SE NE SE section 11-20-11w, Silica area, Barton County, was completed for potential of 944 bbls. of oil. It topped pay at 3,295 feet and was bottomed at 3,302 feet.

In the South Silica area, Indian Territory Illuminating Oil Co. No. 8 Bryant, NE SE NW section 25-20-11w, pumped 835 bbls. of oil daily from pay found at 3,267 feet, total depth 3,285 feet.

Atlantic Refining Co. No. 1 Soderstrom, NE NE SW section 21-17-13w, topped pay at 3,250 feet, total depth 3,254 feet, and made potential of 340 bbls. of oil.

Stafford County

Stanolind Oil & Gas Co. No. 3 Volker A, SE SE NE section 23-24-11w, Zenith pool, Stafford County, found Misener sand at 3,815 feet, was bottomed at 3,819 feet and made potential of 1,698 bbls. of oil daily.

Torry & Feaster No. 1 Wittrock, NW NW SW section 34-21-12w, Sittner district, was dry and abandoned at 3,703 feet, total depth.

Reno County

I. Nadel No. 10 Tucker, C W half E half NW section 19-24-4w, Burrton field, Reno County, topped pay at 3,339 feet, total depth 3,383 feet, and had initial production of 686 bbls. of oil daily, with some water.

Simpson & Noble No. 1 Thome, NE NE NW section 17-26-4w, Hilger area, was dry and abandoned at 4,173 feet, total depth.

Harvey County

Inca Production Co. and others No. 1 Wilson, NW NW SW section 29-23-3w, Burrton field, Harvey County, was dry and abandoned at 3,392 feet, total depth.

Pratt County

Atlantic Refining Co. and others No. 1 Harrell, SE NE NW section 11-27-13w, Iuka pool, Pratt County, had pay at 4,324 feet, was bottomed at 4,335 feet, and flowed 164 bbls. of oil in 24 hours, initially.

Russell County

W. I. Southern, Inc. No. 12 Sellens, NE SE SW sec-

(Continued on Page 81)

Texas and Louisiana Gulf

By
NEIL WILLIAMS

Eyes Turn to Production Test of Deepest Hole in Louisiana

HOUSTON, Tex., June 7.—Interest in the Gulf Coast district was centered on the Coastal Louisiana sector as preparations were being made for a production test of Fohs Oil Co. No. 1 Buckley & Bourg, the second deepest test in the world. The well is in section 77-19s-17e, about 15 miles southwest of the Lirette field in Terrebonne Parish. The hole is bottomed at 13,333 feet, and perforations were scheduled to be made after a short string of 5-inch casing was cemented at 13,301 feet. The casing was expected to be perforated from 13,200-50 feet, where a Schlumberger survey showed 65 ohms resistivity and 100 millivolts porosity. Details of the survey, which was run to bottom, showed 6 to 15 ohms resistivity and 100 millivolts from 13,210-20 feet, shale from 13,220-21 feet, solid sand from 13,221-50 feet, and broken sand and lime from 13,250-75 feet. An interesting feature is that the hole was drilled to its present depth by a large rotary mounted on a drilling barge, another advancement in marine drilling technique.

While the Fohs test was being prepared for completion, the same company was running 7-inch casing in another deep wildcat about 3½ miles southeast of the Lirette field in the same parish. The well is in section 41-19s-19e, on Bayou Baptiste. The hole is bottomed at 12,511 feet, and several promising sands are reported to have been logged.

New Choctaw Sand Dome

A new sand for the Choctaw dome, Iberville Parish, was opened with the completion of Louisiana Crusader Oil Co. No. 2 Schwing, section 29-8s-11e. Oil sand was logged at 8,250-56 feet and the well was completed for an initial production of 30 bbls. of 37.4-gravity oil an hour through a quarter-inch choke.

In the Lafitte field, Jefferson Parish, Texas Co. added another 10,000-foot producer with the completion of No. 10 Lafitte. Casing was perforated at 10,005-45 feet and the well flowed 1,608 bbls. a day through a three-eighths inch choke. The well is in section 17-17s-24e, and the completion extends the field about a half mile.

In the Lake Long field, Lafourche Parish, Fohs Oil Co. was testing a deeper sand in No. 4 State. The hole is bottomed at 10,437 feet and 5-inch liner has been cemented on bottom, preparatory to testing a sand section at 10,390 feet to the total depth.

Gulf Oil Corp., Plaquemines Parish, continues to log additional showings in No. 4 State, the second well to be drilled in the field. Oil and gas sands were logged from 9,617-94 feet.

Tide Water Oil Co. completed another producer on the flank of the old Venice dome. No. 7 Manhattan Land & Fruit Co., section 26-21s-30e, flowed 509 bbls. a day through a three-sixteenths inch choke from a screen setting at 7,176-7,205 feet, the total depth.

Two extensions to the Villa Platte field, Evangeline Parish, were made by the Continental Oil Co. No. 1 Martha Haas, one-half mile southeast of production, flowed 507 bbls. a day through a three-sixteenths inch choke from oil sand at 9,038-88 feet. Approximately the same distance east of production No. 1 Hattie Haas cored oil sand at 9,078-9,138 feet, and casing has been cemented for completion. The hole was cored to a total depth of 9,156 feet.

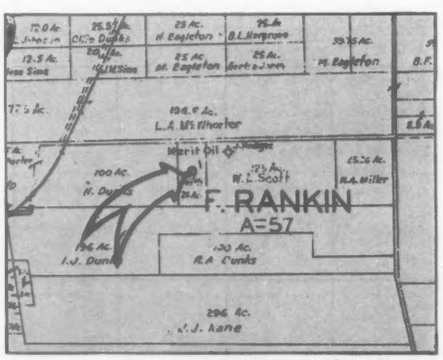
Humble Oil & Refining Co. No. 1 Boyd Finch has been completed for a small producer as the discovery well in the South Crowley field, Acadia Parish. It had an initial production of 100 bbls. of fluid a day of which 35 bbls. is oil and the rest salt water. Additional development is expected at an early date, as the well has shown for a prolific producer.

Republic Production Co. No. 1 Lutcher-Moore, the discovery well of the Bancroft field, Beauregard Parish, has been officially completed for an initial production of 50 bbls. of 61-gravity distillate a day through a quarter-inch choke. The well is producing from perforations at 7,575-79 feet and is now shut down. Additional drilling is expected. Location is in section 10-6s-13w.

Another Eureka Field Producer

Along the Texas side of the Gulf Coast, Allamo Drilling Co. added another producer to the Eureka field, No. 3 Laura Lackner, northeast of production, flowed 596 bbls. a day through a quarter-inch choke with tubing pressure 1,500 pounds and casing pressure 800 pounds. The well is producing through perforations at 7,691-7,731 feet. Houston Oil Co. No. 2 Helbert & Lackner, perforated casing at 7,702-12 feet and flowed salt water.

Two wildcats in Harris County were nearing critical depths and one of them loomed as a dry hole. Jack Frazier and others No. 1 Houston Deep Water Land Co., Thomas Earle Survey, was drilling below 5,730 feet and it is considered too low structurally to produce. The well in the Pasadena area, is southwest of Cockburn Oil Co. No. 1 Brooks, a dry hole. Northeast of Houston in the Crosby area, Merit Oil Co. No. 1 Smith, J. Rankin



W. W. Zingery, Maps, Houston

Merit Oil Co. No. 1 Guy Smith, an attractive wildcat being drilled in the Crosby area, Harris County

Survey, is drilling in shale below 6,325 feet and is scheduled to be drilled to the Cockfield.

Four wells were scheduled to be completed in the Fairbanks field, Harris County. Amerada Petroleum Corp. and Stanolind Oil & Gas Co. No. 1 Denman, J. Waugh Survey, topped oil sand at 6,836 feet and cored to a total depth of 6,848 feet. At 6,847 feet 5½-inch casing was cemented and it was perforated at 6,827-32 feet. No. 1 Hahl, W. K. Hamblen Survey, is bottomed in sand at 6,893 feet with 5½-inch casing cemented at 6,892 feet. No. 1 Sebek topped oil sand at 6,850 feet and is running a Schlumberger survey at 6,858 feet, preparatory to setting casing. Showers & Moncrief No. 1 Reid, J. Waugh Survey, topped oil sand at 6,810 feet and cored to a total depth of 6,840 feet. Seven-inch casing was cemented at 6,838 feet.

In the Cedar Point field, Galveston Bay, Stanolind Oil Co. of Texas was completing No. 2 State after plugging back and perforating casing at 5,974-82 feet. On a 10-minute drill-stem test, 2,700 feet of oil was recovered.

On the southwest flank of the Orange field, Orange County, W. V. Bowles was testing No. 1 Scales and prospects of production were not bright. Bottomed at 6,211 feet with 5½-inch casing cemented at 6,179 feet, the casing was perforated at 6,135-39 feet and from 6,133-36 feet, but the well failed to flow and the hole is being swabbed. On a drill-stem test at 6,100-79 feet it tested no pressure and recovered 5 thribbles of drilling mud. The well is 393 feet south of J. M. Campbell No. 1 Scales, a recent dry hole.

In the North Cheek field, Jefferson County, Magnolia Petroleum Co. No. 4 Phelan has been plugged back from a total depth of 8,896 feet preparatory to sidetracking at 8,200 feet and recoring to 8,443-68 feet, where sand with an oil show was logged.

In the McCrosky field, Matagorda County, prospects were considered bright for a good producer being completed by Pierce Estate on the fee lease, following a drill-stem test at 6,551-6,616 feet, the total depth, which showed 700 pounds of pressure and 2,100 feet of oil-cut drilling mud.

COMPLETIONS ON TEXAS COAST

Brazoria County

Hastings field: Stanolind Oil & Gas Co. No. 8-B Brown, perforated casing 5,660-5,707 feet, 701 bbls., quarter-inch choke; No. 7 Guido, perforated casing 5,590-5,615 feet, 634 bbls., quarter-inch choke; No. 19 Paul, perforated casing 5,716-84 feet, 517 bbls., quarter-inch choke. Old Ocean field: Harrison & Abercrombie No. 1 Froyer and West Texas Abstract Co., perforated casing 9,880-10,045 feet, 360 bbls., various chokes. West Columbia field: Adrian Moore No. 3 Gulf fee, sand 5,538-5,607 feet, 528 bbls., quarter-inch choke.

Chambers County

Seabreeze field: Sun Oil Co. No. 2 Seabreeze Land Co., perforated casing 8,810-24 feet, 132 bbls. net oil, 15 per cent salt water, quarter-inch choke.

Fort Bend County

Thompson field: Humble Oil & Refining Co. No. 35-X Lockwood & Sharp, sand 3,100-26 feet, 259 bbls., eighth-inch choke.

Galveston County

Dickinson field: Humble Oil & Refining Co. No. 2 Leake, sand 8,027-72 feet, 756 bbls., quarter-inch choke. Pure Oil Co. No. 3 H. J. Otterside, perforated casing 8,049-52 feet, 147 bbls., quarter-inch choke.

Harris County

Eureka field: J. Frazier No. 2 Vollmer-Neiman, sand 7,714-36 feet, 594 bbls., quarter-inch choke. Friendswood field: Humble Oil & Refining Co. No. 8 Beamer, sand 5,737 feet, 611 bbls., quarter-inch choke; No. 2 Herman Hospital, sand 5,572-5,820 feet, 594 bbls., quarter-inch choke. Pierce Junction field: Rio Bravo Oil Co. No. 13 fee, sand 4,205-15 feet, 503 bbls., quarter-inch choke. Tomball field: Humble Oil & Refining Co. No. 17 Reed, perforated casing 5,560-62 feet, 484 bbls., quarter-inch choke.

Jefferson County

Amelia field: Glenn H. McCarthy No. 9 Longe, sand 5,875-90 feet, 130 bbls., eighth-inch choke. Spindletop field: Unity Oil Co. No. 2 Daisey Rosch, perforated casing 2,645-75 feet, 127 bbls., pumping.

Liberty County

Cleveland field: J. G. Mayo and others No. 1 J. M. Blanding, 6,110 feet, abandoned. Hardin field: Atlantic Refining Co. No. 1 McMurtry, perforated casing 7,556-60 feet, 334 bbls., quarter-inch choke; No. 2 McMurtry, perforated casing 7,600-7,710 feet, 137 bbls. fluid, 18 per cent B.S. and fresh water.

Matagorda County

Hamill No. 3 Meyers, 2,500 feet, abandoned.

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Among Gulf Coast Drilling Contractors

Loffland Brothers have established something of a drilling record for the Gulf Coast district by drilling two wildcats simultaneously for one company, and prospects of opening production in each one look promising. Both wells are being drilled for Fohs Oil Co. and they are located in Terrebonne Parish, Coastal Louisiana. No. 1 Buckley & Bourg, 15 miles southwest of the deep Lirette field, was drilled to the second greatest depth in the world when it was stopped at 13,333 feet to run casing for a production test. The last string of protection casing was cemented at 11,684 feet, and the production string consisted of 1,957 feet of 5-inch cemented at 13,301 feet with 320 sacks of cement. The operators were unable to seal the 5-inch casing to the 7-inch, so they will perforate the 5-inch at the top and cement the two strings together.

The hole was drilled with a large rotary rig, mounted on a drilling barge which establishes a record for this type of marine drilling.

Approximately 3½ miles southeast of the Lirette field, Fohs Oil Co. No. 1 Bayou Baptiste is bottomed at 12,511 feet and 7-inch casing was being run. Several sands have been logged in the well, although the hole may be drilled deeper before a production test is made.

Trinity Drillers, of San Antonio, marked up four completions in Southwest Texas, received contract from Phillips Petroleum Co. for one well in Nueces County, and continue drilling operations with six rotaries located as follows: One at the Alta Mesa field, for Standard Oil Co. of Texas; one at the Driscoll field, for Continental Oil Co.; one in Redfish Bay, for Coastline Oil Co.; one at Midway in San Patricio County, for Phillips Petroleum Co., and one in the McFaddin field, for Tranwestern Oil Co.

Drilling activity in both the Southwest and Texas Gulf Coast districts in May showed little change from the preceding month. In the southwest 265 operators were listed, an increase of six. Of this total 232 were listed as drilling operations and 33 were being rigged up. In the Texas Gulf Coast area there was no change in the total number of drilling wells. Twenty-one wells were being started and 131 were active. Fields marked by particular activity in the Gulf Coast include Dickinson, Fairbanks, Hastings, and West Columbia. In the southwest area Benavides, Heyser, Saxet, and Tom O'Conner fields continue to lead in activity.

A. W. Crosby Drilling Co. received a contract from E. M. Hailey for an interesting outpost test to be drilled on the K. Fisher lease, about 1 mile southwest of the Fairbanks field.

There was a slight decrease in the number of locations reported for the Texas sector of the Gulf Coast the past week. A total of 32 were made, compared with 34 in the previous week. All locations were made in proven fields, with a majority in Dickinson, Hardin, and Friendswood fields.

Rowan & Hope are running casing in their No. 1 Cuellar Brothers, in Duval County, which is expected to open the Laredo district third Pettus sand field. Casing is being cemented to test at 5,100-36 feet, where a recent drill-stem test showed favorable indications.

Nicklos Drilling Co. extended the Villa Platte field, about a half-mile east with completion of one well for Continental Oil Co. Three rigs are running in the field for the company. The Nicklos joint test with the Continental at Lockport is drilling below 6,700 feet. At Villa Platte one rotary is operating for the Pan American Production.

Allen & Morris, of San Antonio, are nearing the 10,000-foot horizon on Continental Oil Co. No. 1 Garcia Land & Cattle Co., an interesting wildcat in Hidalgo County. It is coring below 9,700 feet. This is one of the few deep tests ever drilled in Southwest Texas.

John G. Mayo and others No. 1 J. M. Blanding, 1½ miles southwest of the Cleveland field, Liberty County, has been abandoned at a total depth of 6,110 feet, after testing in the upper and lower sections of the Cockfield formation with no results.

Sam E. Wilson, Jr., is preparing for a projected 8,500-foot wildcat in the Fresno area, Fort Bend County, on the M. T. Wood lease, center of Lot 93 in the Charles Heywood Survey.

In the Cordele field, Jackson County, H. J. Porter No. 1 Monia Pressly, Peter White Survey, an east offset to the discovery well cored with an oil show at 2,667-72 feet and casing is being cemented for a production test.

Another location has been made in the Bammel area, Harris County. The well is being drilled by H. M. Harrell and others on the Polley lease in the C. G. McLean Survey. It is approximately 5,550 feet east of George Lawrence No. 1 Zappe, a distillate well, and 5,525 feet southwest of Superior Oil Co. No. 1 Beutler, another wet gasser.

In the Hitchcock field, Galveston County, Maco Stewart No. 2 fee is bottomed at 5,151 feet and 1½-inch casing was cemented on bottom. A good saturated oil section was cored from 5,131-47 feet. The well is 660 feet east of N. W. Hunter No. 3 Stewart, recently completed for a good producer.

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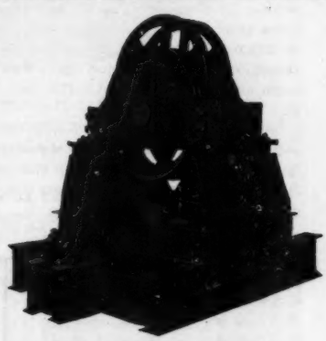

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Oklahoma Operations

By
DAL DALRYMPLE

Three Big Wells at Ramsey; Wildcats Started in Garfield

Completion of three big producers in the Ramsey pool, Payne County, featured field operations in Oklahoma the past week, but with that prolific area likely to be quiescent for several weeks interest again centered in wildcat activity. Several new outposts were started, and several older wildcats were near completion.

Two wildcats in Garfield County were reported. These were Champlin Refining Co. No. 1 Boehn, SW SW NE section 4-24-8w, near Hillsdale in the northwestern corner of the county; and Indian Territory Illuminating Oil Co. No. 1 Kitchin, C SE SE section 17-22-5w, about 5 miles east of Enid. It is to be a Wilcox sand test, with contract depth of 5,700 feet. The No. 1 Boehn also is to be a Wilcox sand test, with that formation expected at around 6,800-7,000 feet.

Superior Oil Co. and others No. 1 McCully, C W half NW NW section 26-16-4w, is a new wildcat in Logan County, to be drilled to 6,800 feet or Wilcox sand. It is on a farm-out from the Stanolind and Amerada companies to Lon B. Turk, Ross May and A. B. Turk, who made the deal with Superior. Location is south of the Crescent field.

Fain Drilling Co. No. 1 Little, SW SW SE section 28-11-3w, is a new test seeking Simpson Dolomite production on the southwest edge of the Oklahoma City field. It is 1 mile west of Wilcox sand production. Contract depth is 6,900 feet.

Pure Oil Co. No. 1 Lack, SE SW SW section 3-6-5, wildcat in Seminole County and southeast of the St. Louis field of Pottawatomie County, was to be deepened to Wilcox sand. It had 300 feet of oil in the hole from Dolomite at 4,100 feet, and about 800 feet of oil and a large amount of water at 4,116 feet. It was bottomed at 4,125 feet in Dolomite.

Sinclair Prairie Oil Co. No. 1 Crews, SW SW NE section 27-16-1e, wildcat near Meridian in Logan County, was deepened to 5,223 feet in Wilcox sand and flowed 367 bbls. of oil in 24 hours. The crew was instructed to drill farther into the sand.

W. A. Delaney No. 1 Bugher, SE SE SW section 12-7-2w, pool opener near Noble in Cleveland County, averaged 36½ bbls. of oil an hour in a 17-hour test, with water averaging slightly more than 31 bbls. an hour. The water was reported declining. Production was from Wilcox sand at 7,664-82 feet, total depth.

Ray Stephens, Inc. No. 4 Griffin, NW NW SE section 27-6-10w, on the west side of the Cement field, Caddo County, damaged by fire early the past week, was to be tested after installation of new connections. It is thought to have found a new producing zone for the field. Casing was perforated with 60 shots at 4,650-4,707 feet and it made a 15-minute flow. Production was estimated from 500 to 1,000 bbls. of oil, with 75,000,000 feet of gas. It was bottomed at 4,776 feet, with casing set at 4,742 feet.

Wildcat Completions

Gilbreath & Sutton No. 1 Wolfe, gas pool opener in C SE SW section 8-1n-2e, about 4 miles north of Davis in Murray County, was completed, producing 35,345,000 feet of gas through perforations between 2,229-81 feet. It topped Bromide at 2,227 feet, had dry Wilcox sand at 2,398-2,498 feet and was bottomed at 2,522 feet.

W. R. Ramsey and others No. 1 Parks, SE cor. section 22-12-6, wildcat near Prague in Lincoln County, found first Wilcox sand at 4,691 feet, second sand, at 4,738 feet and was dry and abandoned at 4,754 feet, total depth.

J. Ray Stebbins No. 1 Bourland, SW SW SE section 24-7s-4w, southeastern Jefferson County outpost, found Arbuckle lime at 4,442 feet and was dry and abandoned at 4,528 feet, total depth.

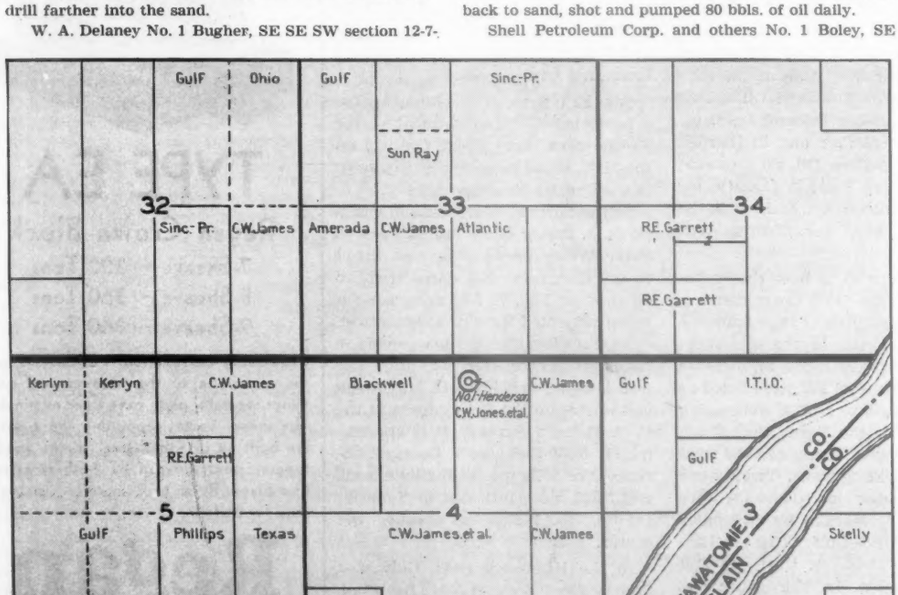
Other recent wildcat completions included the following:

W. A. Delaney and others No. 1 Swan, SE SW SW section 18-6-6, opened a new producing area west of the Konawa pool in Seminole County. It had Thurman sand at 2,671-91 feet, total depth 2,693 feet, plugged back to sand, shot and pumped 80 bbls. of oil daily.

Shell Petroleum Corp. and others No. 1 Boley, SE SE SW section 8-11-6, wildcat in northeastern Pottawatomie County, was dry and abandoned at 4,748 feet, total depth.

Indian Territory Illuminating Oil Co. No. 1 Osage, SW SW NW section 7-24-7, Osage County wildcat, was dry and abandoned at 2,830 feet, total depth.

New wildcats reported the past week included: Carter Oil Co. No. 1 Mote, C E half SW NW section 19-2n-9, at total depth of 625 feet; Anderson-Pritchard Oil Corp. No. 1 Mayer, SE SE SW section 19-3n-8, Pontotoc County, drilling at 892 feet; Indian States Oil Co. and others No. 1 Johnson, NE SE NE section 2-6-5, Seminole County, drilling at 1,230 feet; Supreme Oil Co. No. 1 Tilly, NW NW NE section 20-12-10w, Canadian County, total depth 115 feet, crooked hole, to skid rig; Indian Territory Illuminating Oil Co. No. 1 Bailey, NW NW NE section 2-12-5, Lincoln County, drilling below 630 feet.



Mid-Continent Map Co., Tulsa

Southern Pottawatomie County has a new wildcat at C. W. Jones and others No. 1 Henderson, section 4-5-3e, southwest of West Asher

Estimated Daily Production

Estimated daily production for Oklahoma for the week ending June 4, and for the preceeding week was as follows:

	Barrels	
	June 4	May 28
Ailen	5,150	6,250
Billings	6,150	4,850
Burbank	7,475	7,375
South Burbank	9,875	9,750
Balance Osage	18,000	18,100
Blackwell district	4,700	4,725
Bristow-Slick	7,150	7,075
Chandler	2,025	2,125
Crescent	3,900	3,750
Cromwell	3,100	3,150
Cushing-Shamrock	10,600	10,550
Duncan district	3,550	3,525
Edmond	6,250	5,625
Fish	3,725	3,525
Fitts	39,800	42,225
Jesse	3,250	3,050
Graham	4,500	4,750
Gray	775	950
Healdton	9,250	9,300
Hewitt	4,100	4,050
Keokuk	4,525	4,325
Konawa	1,275	1,250
Lucien	7,500	7,675
Moore	4,575	3,250
Oklahoma City	94,775	92,050
Olympic	5,800	5,625
Ramsey	675	1,150
Sasakwa	1,525	1,325
Sholem-Alechem	2,825	2,850
Seminole district:		
Bowlegs	8,175	8,275
Carr City	3,625	3,325
Dora	4,650	4,775
Earlsboro	4,400	4,950
South Earlsboro	550	450
East Earlsboro	4,675	5,175
Little River	7,100	7,525
East Little River	825	875
Maud	625	600
Mission	1,275	1,475
Seminole	7,525	7,750
East Seminole	1,575	1,575
Searight	3,225	2,475
Total Seminole	48,225	49,225
St. Louis-Pearson	19,850	18,750
Tatums	4,250	4,500
Tonkawa-Garber-Thomas	4,250	4,275
Wewoka	2,350	2,375
Yale-Jennings	3,750	3,775
Other pools	81,000	82,500
Total Oklahoma	440,475	439,600

Payne County

Three producers were completed in the Ramsey pool, Payne County. Mid-Continent Petroleum Corp. and others No. 3 Ramsey, SE SW NW section 18-18-2e, topped Wilcox sand at 4,755 feet, was bottomed at 4,791 feet, and flowed 944 bbls. of 43.2-gravity oil in two hours, with 6,200,000 feet of gas. Potential was estimated at 11,000 bbls. of oil daily. It is an east offset to the discovery well.

Same operator's No. 2 Brandon, NE SE NE section 13-18-1e, flowed 1,218 bbls. of oil in two hours to gain estimated potential of 9,500 bbls. daily. Gas gauged 5,600,000 feet. Top of Wilcox sand was 4,802 feet, total depth 4,834 feet.

The operator's No. 3 Columbia Wetzel, NW NE SW

section 18-18-2e, farthest east producer in the pool, flowed 1,235 bbls. of oil in four hours, with 3,750,000 feet of gas. Daily potential was estimated at 7,408 bbls. of oil. Production was from Wilcox sand topped at 4,698 feet, total depth 4,731 feet.

With the completion of these three wells there are no active tests in the pool, and it was indicated no new operations would be started for some time. There are nine producers in the pool.

Oklahoma County

H. R. Hollenbach and others No. 1 Harding, SW SE NW section 15-12-3w, Oklahoma City field, Oklahoma County, topped pay at 6,347 feet, total depth 6,502 feet, and flowed 221 bbls. of oil daily, with 3,000,000 feet of gas.

Pierce Drilling Co. No. 1 Woodward, SE SE NW section 15-12-3w, flowed 127 bbls. of oil daily from pay topped at 6,399 feet, total depth 6,490 feet.

Gulf Production Co. of Oklahoma No. 3 Schuster, SW NE SW section 15-12-3w, found pay at 6,377 feet, was bottomed at 6,460 feet, and had initial production of 38 bbls. of oil daily.

Seminole County

J. F. Smith No. 3 Harryman C, SE SW SE section 33-7-6, Dora pool, Seminole County, had sand at 2,774 feet, total depth 2,855 feet, plugged back to 2,815 feet, was shot and pumped 150 bbls. of oil daily.

Francis Oil & Gas Co. No. 2 Lewis, SE cor. section 32-7-6, Dora area, had pay at 2,523 feet, was bottomed at 2,914 feet and swabbed 50 bbls. of oil daily.

Seminole completions of the preceding week included: W. A. Delaney No. 1 Rodden, NW NE SW section 13-6-5, dry and abandoned at 2,903 feet.

Simpson-Roodhouse and others No. 1 Salt Creek Baptist Church, SE cor. section 13-6-5, was dry and abandoned at 2,760 feet, total depth.

Winkler & McQueen No. 5 Bruner, SW NE NE section 4-6-6, had Boggy sand at 2,800 feet, total depth 2,828 feet, and produced 300 bbls. of oil daily.

Atlantic Refining Co. No. 3-A Damron, SE NE NW section 22-6-6, was completed as a 140-bbl. producer in sand at 2,321 feet, total depth 2,330 feet.

Wood Oil Co. and others No. 1 Harjo, NE NE SE section 2-8-6, found Wilcox sand at 4,185 feet, total depth 4,203 feet, and had initial production of 240 bbls. of oil daily.

Angle & Angle No. 1 Peabody, SW SW NW section 34-8-7, produced 30 bbls. of oil daily from Booch sand at 3,182-3,213 feet, total depth 3,215 feet.

Pontotoc County

Magnolia Petroleum Co. No. 2 Fleet & Osborn, SW SE NE section 26-5-7, Allen area, Pontotoc County, had Cromwell sand at 2,810-31 feet, total depth, and flowed 100 bbls. of oil in 24 hours.

F. W. Merrick No. 2 Balthrop, SE NE SE section 10-4-6, was dry and abandoned at 1,158 feet, total depth. Magnolia Petroleum Co. No. 39 Metropolitan, SE cor. section 22-2n-7, Fitts area, was dry and abandoned at 2,614 feet, total depth. Ross Henry No. 2-A Parker, SW SW SE section 17-4-8, was dry and abandoned at 680 feet, total depth.

Completions of the previous week in Pontotoc County: Lake Oil Co. No. 1 Neal, NW NW SW section 25-5-4, had Hunton lime at 2,250 feet, total depth 2,560 feet, plugged back to 2,475 feet and was a 20-bbl. producer.

Clark & Cowden No. 1 Starrett, SW NE NE section 21-5-5, produced 5 bbls. of oil daily from Calvin sand at 1,712-32 feet, total depth 1,734 feet.

Pottawatomie County

J. F. Smith No. 1 Hiner, NE SE NE section 21-7-4, St. Louis area, Pottawatomie County, had initial production of 208 bbls. of oil daily from pay topped at 3,167 feet, total depth 3,180 feet.

Magnolia Petroleum Co. No. 8 Banta, NW NE SE section 14-7-4, swabbed 20 bbls. of oil and 7 bbls. of water daily at total depth of 3,125 feet.

Gulf Oil Corp. No. 4 Barton, NE NE NW section 13-7-4, topped pay at 3,066 feet, total depth 3,081 feet, and produced 18 bbls. of oil daily.

Dixie Oil & Gas Co. No. 1-A Richards, SE NE SE section 35-7-4, found pay at 4,245 feet, total depth 4,283 feet, and had initial yield of 150 bbls. of oil in 24 hours.

Producers, Inc., No. 1 Milburn, SE NW NW section 15-7-4, an old well, was plugged back from 3,545 feet to 3,500 feet, casing was perforated and it produced 8,000,000 feet of gas daily.

Same operator's No. 4 Cardwell, NW SW NW section 15-7-4, an old well, produced 9,000,000 feet of gas after plugging back from 3,560 feet to 3,500 feet and shooting.

Pottawatomie County completions of the previous week included: Magnolia Petroleum Co. No. 3 Lynn, SE NE NE section 21-7-4, found Cromwell sand at 3,212 feet, total depth 3,217 feet, and produced 7,000,000 feet of gas.

Denver Producing & Refining Co. No. 1-A Martin, SW SE NW section 19-7-5, was dry and abandoned at 3,505 feet, total depth.

Osage County

Barnsdall Oil Co. No. 3 Osage, NE SE SW section 23-24-10, West Barnsdall pool, Osage County, found Bartlesville sand at 1,711 feet, total depth 1,721 feet, and flowed 325 bbls. of oil naturally in 24 hours.

Pure Oil Co. No. 179 Osage, SW NE NE section 5-23-8, was completed as a 2½-bbl. pumper at 738 feet, total depth. Same company's No. 180 Osage, NE NW NE section 5-23-8, was an abandoned location.

Coralena Oil Co. No. 3 Osage, SE NE SW section 21-25-6, was dry and abandoned at 2,734 feet, total depth.

Curtis Oil Co. No. 2 Osage, SE NE SW section 26-23-9, a recent Osage County completion, was dry and abandoned at 2,615 feet, total depth.

Lincoln County

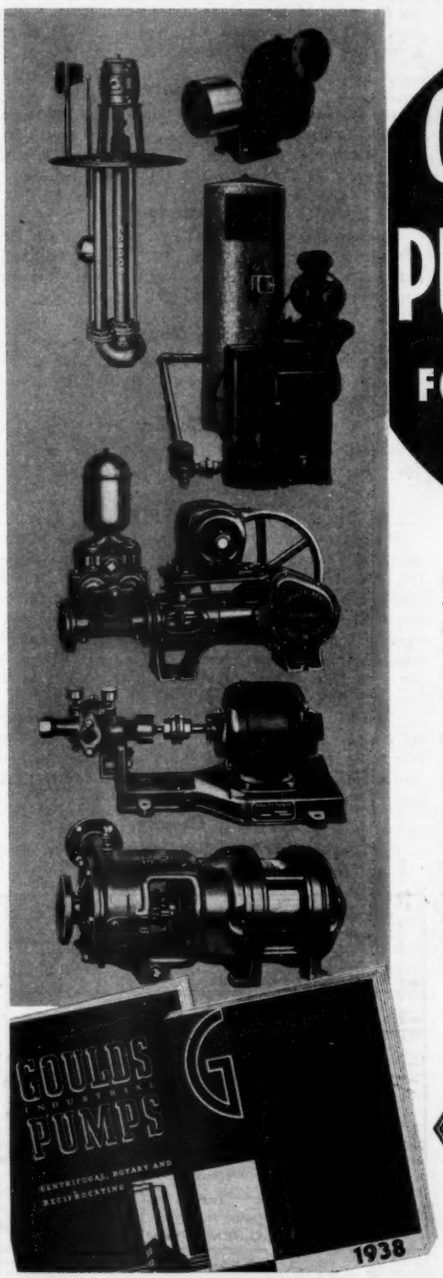
Wilcox Oil & Gas Co. No. 2 Fitch, NW NW NE section 15-14-6, Sac and Fox pool, Lincoln County, was bottomed at 3,015 feet, shot with 90 quarts and pumped 52 bbls. of oil daily, producing from Prue sand.

Same company's No. 12 Sac and Fox, SE SW NW section 15-14-6, flowed 350 bbls. of oil daily after shooting with 90 quarts and was completed at 3,022 feet, total depth.

Creek County

Whitehill Oil Corp. No. 9 Marion, C S half NE SW section 8-18-11, Creek County, topped pay at 1,622 feet, total depth 1,788 feet, and pumped 10 bbls. of oil in 24 hours.

(Continued on Page 82)



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North and East Texas

By MITCHELL TUCKER

Sinclair Prairie's Completion Opens Field in Cooke County

WICHITA FALLS, Tex., June 6.—A new field opener in northeastern Cooke County, good for 500 to 600 bbls., is definitely assured at Sinclair Prairie Oil Co. No. 1 J. M. Best. The location is 13 miles northeast of Gainesville in the Thomas Toby Survey.

From a saturated section logged from 4,887-95 feet, total depth, the well gauged 220 bbls. in eight hours and 295 bbls. the second six hours into tanks, by swabbing and natural flow. Corrected gravity of this green oil tested 37 degrees. Swabbing is being done through 9-inch casing set at 4,886 feet, or 1 foot above top of saturation.

Production is from a section tentatively classified as Strawn, of Texas-Pennsylvania age, and is correlated with the Deese sand which is producing in the Healdton district of southern Oklahoma.

A 15,000-acre block is tightly held along this structure, Sinclair holding about 6,000 acres, the Texas Co. 5,000 acres, Magnolia 2,500 acres, and scattered properties by Humble, Sun, and others.

Only 16 new completions were made in the K.M.A. field as compared with 28 in the preceding week, which indicates a continued reduction of field activity. K.M.A. reports contain 256 operations, of which 71 are listed as locations, 19 as having derrick or pits, 119 drilling wells, and 47 completed but waiting on test. Of the 119 classified as drilling wells 81 are drilling or in the process of completion between casing-seat and total depth. Therefore, only 38 actually are making hole between surface and casing-seat.

Another effort to extend the southeastern producing limits of the pool was seen last week when C. B. Christie and others staked No. 1 J. A. Kemp, Block 40, K.W.V.F.L. Survey, about 1 mile east of production on the south end of the field.

Activity in Archer County remained in a state of uncertainty, as most of the important wells still were in the testing stages. Hines & Hancock No. 1 Anderson, section 23, Anderson ranch, in the south central part of the county, was dry and abandoned at 4,002 feet.

EASTERN TEXAS

DALLAS, Tex., June 6.—Stanolind Oil & Gas Co. has been granted permission to conduct experiments on the disposal of salt water in the East Texas field back into the lowermost point of the permeable Woodbine sand. The experimental injection well selected is its No. 3 R. A. Moore in the J. B. De Cadena Survey, Rusk County, near the south end of the field.

The Flag Lake pool of northwestern Henderson County received two new locations last week, one for a southwestern extension which gives the pool three active drilling wells. Richards & Holloway commenced operations on their No. 1 J. P. Tarkington in the William Newell Survey, 1,500 feet southwest of the Texas Co. No. 1 Nolen, which extended the pool 1½ miles to the southwest. This new outpost was coring at the close of the week below 3,070 feet for the Woodbine sand.

Peyton Brothers staked No. 1 J. P. Tarkington, also in the William Newell Survey and between the Richards & Holloway test and the recently completed Texas Co. No. 1 Nolen.

In Gregg County, Humble Oil & Refining Co. and Gulf Oil Corp. No. 1 E. Robertson, M. Mann Survey, 2½ miles southwest of Longview, continues to test the Travis Peak formations as it plugs back from original total depth of 10,275 feet.

Opening a new gas and distillate field near Chapel Hill in Smith County, and 8 miles west of the East Texas field, Hunt Oil Co. No. 1 Bradley has been completed in the Glen Rose lime of Lower Marine Trinity. An estimated flow of 10,000,000 feet of gas with considerable distillate through restricted tubing choke has been made initially.

NORTH TEXAS COMPLETIONS

Archer County

C. E. Beavers No. 1 O. T. Norred, 1,340 feet, dry. Bridwell Oil Co. No. 1 C. Prideaux, 895 feet, dry. Cable Oil Co. No. 3 C. Webb, 700-09 feet, 10 bbls. Camp Drilling Co. No. 1 H. Harmel, 4,511 feet, dry. Hines & Hancock No. 1 J. L. Anderson, 4,002 feet, dry. N. H. Martin & Son and others No. 1 Wilson, 5,200 feet, dry.

Clay County

Beasley and others No. 1 C. J. Shumake, 1,137-51 feet, 10 bbls. Bridwell Oil Co. No. 1 C. T. Taylor, 1,412 feet, dry. Metzner & Burns No. 4 L. Thornberry A, 1,123 feet, dry. C. G. Spicer No. 1 J. Hunt, 1,325 feet, dry.

Jack County

Burgess and others No. 1 L. W. Scott, 800 feet, dry. A. T. Gray No. 1 M. Covington, 376-81 feet, 45 bbls. Hill & Hill No. 2 Hickman, 2,913-45 feet, 218 bbls. Raynolds and others No. 1 L. Carter, 590 feet, dry.

Montague County

Seitz Comegys No. 2 J. N. Roach B, 1,743-55 feet, 480 bbls. Sinclair Prairie No. 3 D. T. Holt B, 1,768-72 feet, 10 bbls.

Cooke County

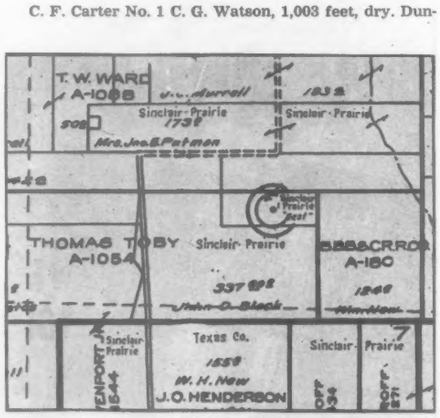
Sunset Oil Co. No. 1 J. T. Donald, 2,494 feet, dry. The Texas Co. No. 2 J. W. Hess, 1,105 feet, dry.

Wichita County

B & M Drilling Co. No. 1 Williams, 660-81 feet, 15 bbls. Barnes & Traugh No. 2 R. L. Kempner, 3,781-3,866 feet, 187 bbls. 11 hrs. Consolidated Oil Co. No. 8 W. P. Ferguson, 3,712-3,825 feet, 3,712 bbls. Continental Oil Co. No. 1 N. H. Martin, 3,790-3,824 feet, 408 bbls. Deep Rock Oil Co. No. 2 E. H. Hamilton, 3,690-3,812 feet, 2,016 bbls. Golding & Cochran No. 27 Waggoner C, 3,780-3,835 feet, 920 bbls. Magnolia Petroleum Co. No. 1 R. L. Kempner B, 3,805-56 feet, 920 bbls. Manson Oil Co. No. 2 Sue Mitchell B, 3,905-3,958 feet, 1,040 bbls. Mulberry Oil Co. No. 2 R. J. Bradley, 3,718-3,819 feet, 968 bbls. Pois & Schultz No. 16 Ed Foster J, 1,264-75 feet, 182 bbls. White & Duncan No. 12 G. T. Goetze, 1,666-79 feet, 227 bbls.

Young County

C. F. Carter No. 1 C. G. Watson, 1,003 feet, dry. Duncan Holt Marchman No. 30 Benson A, 879-900 feet, 100 bbls. Fain-McGaha Oil Corp. No. 1 Dashe (Logan), 5,090 feet, dry. T. D. Humphrey No. 4 Jeffery, 3,879-3,946 feet, 105 bbls. Lion Oil Refining Co. No. 1 A. W. Kay, 3,752-4,268 feet, 15 bbls. J. A. Woods No. 1 W. J. Saunders, 4,136 feet, dry.



Zingery Oil Map Co., Fort Worth

Sinclair Prairie No. 1 J. M. Best, field opener in Delaware Bend area near Red River in northeastern Cooke County, is showing for a 500- to 600-bbl. well from 4,887-95 feet in the Strawn

EAST CENTRAL TEXAS COMPLETIONS

(24-hour gauges)

Ellis County

Julian Ivy No. 1 S. Cerf, dry and abandoned at 800 feet.

Titus County

Humble Oil & Refining Co. No. 5 Belcher, 4,216-4,342 feet, 227 bbls.

Henderson County

Hager & Jones No. 1 Coleman-Faulk, dry and abandoned at 3,423 feet. L. Johnson No. 1 Coffey, dry and abandoned at 3,495 feet.

Van Zandt County

Richards & Holloway No. 1 Chitty, dry and abandoned at 4,556 feet.

EAST TEXAS FIELD COMPLETIONS

(One-hour gauges)

Gregg County—Longview Area

Arkansas Fuel Oil Co. No. 16-B J. C. & R. S. McKinley, 3,624-50 feet, 64 bbls. Atlantic Refining Co. No. 37-A E. Burnside, 3,520-3,630 feet, 118 bbls. Deep Rock-Murphy No. 18 H. Pritchard, 3,506-41 feet, 80 bbls.; No. 19 H. Pritchard, 3,505-40 feet, 80 bbls. L. S. Flannery No. 2 York, 3,556-91 feet, 140 bbls. C. A. Lee No. 3 E. L. Walker, 3,590-91 feet, 33 bbls. Magnolia Petroleum Co. No. 10 G. W. Tate, 3,431-35 feet, 60 bbls.; No. 8 T. W. Tuttle, 3,602-14 feet, 60 bbls. B. F. Phillips No. 1-B G. Jackson, dry and abandoned at 3,600 feet. Roosth & Genecov No. 5 G. W. Richey, 3,558-68 feet, 78 bbls. Stanolind Oil & Gas Co. No. 19 G. Fenton, 3,576-3,619 feet, 51 bbls. Stanolind-Atlantic No. 20 M. Hays, 3,494-3,562 feet, 47 bbls. Superior Oil No. 7-B H. Pritchard, 3,521-52 feet, 140 bbls.

Gregg County—Kilgore Area

Everetts Drilling Co. No. 4 Barton, 3,532-99 feet, 82 bbls. Gulf Oil Corp. No. 46 Spear, 3,539-57 feet, 65 bbls. T. L. James No. 18 L. Lacey, 3,523-3,600 feet, 65 bbls. Ketal Oil No. 2 Willis Smith, 3,526-38 feet, 80 bbls. Davis & Hart No. 4-B Elder & Rowland, 3,522-42 feet, 5 bbls. Riverside Production Co. No. 8 W. P. Luse, 3,556-69 feet, 30 bbls.; No. 9 W. P. Luse, 3,556-58 feet, 40 bbls.; No. 11 W. P. Luse, 3,577-79 feet, 55 bbls. Shell Petroleum Corp. No. 78 J. B. Watson, 3,539-3,666 feet, 37 bbls.; No. 20 Willoughby, 3,552-3,626 feet, 44 bbls.; No. 21 Willoughby, 3,540-3,626 feet, 70 bbls. Tide Water No. 32 M. G. Barton, 3,598-3,615 feet, 200 bbls.

Rusk County—Kilgore Area

H. Hanbury No. 3 L. Moore, 3,602-36 feet, 65 bbls. Magnolia Petroleum Co. No. 16 D. Willis, 3,596-97 feet, 80 bbls. Overton Refining Co. No. 2-A R. Jones, 3,656-65 feet, 34 bbls. De Montrand No. 10 L. J. Pinkston, 3,592-97 feet, 60 bbls. Gulf Oil Corp. No. 15 W. L. Murphy, 3,739-50 feet, 55 bbls. Humble Oil & Refining Co. No. 4-A C. Young, 3,686-96 feet, 78 bbls. Hunt Oil No. 12 J. H. Wooley, 3,671-96 feet, 40 bbls. Magnolia Petroleum Co. No. 7 J. W. Flannagan, 3,618-37 feet, 44 bbls. Ohio Oil Co. No. 46 S. H. Moores, 3,654-3,705 feet, 30 bbls. N. P. Powell No. 1 Mydia Colored Church, 3,678-89 feet, 80 bbls.

E. M. Jones and others No. 7 D. Wills, 3,595-3,612

(Continued on Page 82)

North Louisiana, Arkansas

By GEORGE WEBER

Gas and Distillate Reserves of Territory Are Broadened

SHREVEPORT, La., June 7.—For the second successive week North Louisiana and Arkansas have gained two new producing areas. This week, however, saw discoveries of new gas and distillate reserves, augmenting the already vast potential production of that type in the district.

The old Shongaloo gas field of northern Webster Parish has followed the example of such areas as Rodessa and Cotton Valley, in the discovery of high-gravity production in deeper horizons. The discovery well, Magnolia Petroleum Co. No. 1 Sexton Unit, is one of the deepest wildcats drilled in North Louisiana. After failing to encounter the Smackover lime at a total depth of 10,462 feet, the well was brought in producing from an upper sand cored several weeks ago.

In the Logansport area, embracing Shelby County, Texas, and De Soto Parish, Louisiana, attention is focused on two wildcat tests. The first, the Hunter Co. No. 1 Parker, in De Soto Parish, has apparently opened an important extension to the Logansport gas and distillate field, and a second well to the north is showing for production.

Throughout the North Louisiana and Arkansas area generally drilling is on the increase, with such fields as Cotton Valley, Lisbon, Schuler and parts of Rodessa leading in activity. Following the discovery last week of two new oil fields, development of those areas is under way. The new Zwolle, or Blue Lake, field is receiving immediate attention, and the Village area of Columbia County, Arkansas, is expected to see active drilling.

Deep Exploratory Wildcat

Outstanding during the week is the successful completion of Magnolia Petroleum Co. No. 1 Sexton Unit, the Webster Parish wildcat in the old Shongaloo field. With total depth at 10,462 feet, 7-inch casing was stuck at 9,464 feet and cemented there. The wildcat was a deep exploratory test, and the Big lime or the Smackover lime was the object of the deep drilling. Having encountered none of that section, however, at the present total depth, the operators reverted to a good section of saturation at about 9,000 feet for completion as a gasser and distillate producer.

Casing was perforated at 8,990-9,010 feet with 40 shots. After making gas, mud, and wash water while cleaning, the test was closed in, with a tubing pressure of 2,850 pounds and a casing pressure of 2,300 pounds. Reopened, the new well gauged an estimated 2,000,000 feet of gas, together with about 14 bbls. an hour of high-gravity distillate on a 45/64-inch choke. The production averages 54 gravity. The horizon from which the deep test is producing is in the Lower Marine, or Cotton Valley formation, the latter name being the proper one according to recent nomenclature decisions.

While the test has failed to tie the North Louisiana district into the producing trend of the Big lime in Union and Columbia counties, South Arkansas, it is important in opening new gas and distillate reserves from a deeper horizon in an old shallow gas field. This corresponds to the manner of discovery of several of North Louisiana's most important fields.

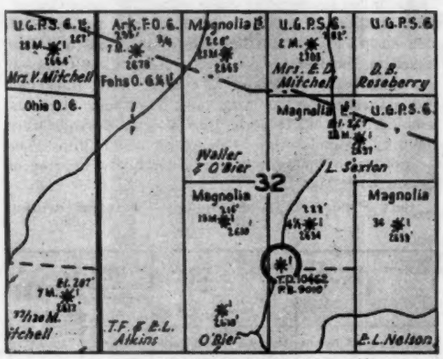
Although the well is producing, operators may rework it to the extent of perforating more sand in the 65-foot section, which showed saturation while coring. A geophone survey was run on the hole early in the week.

Logansport Developments

A 3½-mile northeast extension to the Logansport gas and distillate area was effected by completion of the Hunter Co. No. 1 Parker, in the SE cor. SW section 26-12-16, De Soto Parish. The test first encountered shows when it blew out at 2,912 feet. After the well had been killed it was drilled deeper, and the base of the massive anhydrite was encountered at 4,862 feet. Broken sand showing gas was cored at 4,953-5,085 feet and 5½-inch casing was set at 5,138 feet. The casing was perforated at 4,953-5,029 feet with 98 shots.

After washing for a little over one hour the well came in. It made 1,000,000 feet of gas through an eighth-inch choke, and its potential production was estimated at 40,000,000 to 50,000,000 feet daily through open tubing. The gas is wet, corresponding to the production in the Logansport field, which it apparently extends. At latest reports the well was shut in, having been cleaned, and it will remain closed in until an outlet is secured.

A second interesting test in the area is the S. S. Alexander No. 1 Stoll, in the NE cor. section 5-12-16. The wildcat, about 4½ miles northwest of the Hunter well, recently tested salt water at 5,440 feet. All perforations above 5,180 feet were recemented and in subsequent swabbing operations a show of oil was reported. The show is in the Young sand of the Glen Rose series.



Walter E. Wylie, Maps, Shreveport

The old Shongaloo gas field became the latest shallow field to gain important deep production when Magnolia No. 1 Sexton Unit, indicated by circle, was completed

Across the state line in Shelby County, Texas, the Center Oil Co. No. 1 Windham, in the English Survey, was swabbing after encountering a show of oil and gas in drilling mud. The well was acidizing at 3,422 feet with 1,500 gallons of acid.

Working on Two Tests

In the recently opened Blue Lake field, in the Zwolle area of Sabine Parish, operations are under way on two new tests. The F. W. Martin No. 1 Sabine Lumber Co. has set a string of intermediate casing and is expected to be on the sand shortly. A second test, Lee Whitehurst No. 1 Bowman Hicks Lumber Co. is drilling, and two locations staked by J. G. Sutton Oil Co., discoverer of the new field, are up for drilling. Albert Reich No. 1 Glaque, a southwest outpost test, is also getting under way.

In the new Village field of Columbia County, South Arkansas, the discovery well, Standard Oil Co. No. 1 Phillips gauged 209 bbls. a day on a 9/64-inch choke with tubing pressure at 1,940 pounds and casing pressure at 2,700 pounds. The crude is being moved from the field tanks by truck.

Two outpost tests to Cotton Valley and Lisbon are attracting attention in their respective areas. In Cotton Valley the Stanolind Oil & Gas Co. No. 1 Pardee, the Schlumberger survey showed the Bodcaw sands at 8,572-8,605 feet and 8,611-30 feet, and 5½-inch casing was set at 8,607 feet. Total depth is 8,642 feet.

In the Lisbon area the Oakes and others No. 1 Kilgore, a northwest outpost, swabbed dry at 5,313 feet and was arranging to acidize in an effort to bring in a producer. On the southwest the Weaver Oil Corp. No. 2 Edmonds, after coring slight porosity and spotted saturation in the lime at 5,478-83 feet, deepened to 5,851 feet and will be abandoned, marking the limits of production in Lisbon in that direction.

Completions gained during the week, with the Marion County sector of Rodessa leading with six wells. Cotton Valley added two wells each in the Bodcaw and the Holloway sands, and Schuler gained four producers.

In the Schuler field, due to recent completions, the pipe line takings of the Root Petroleum were cut to 100 bbls. a well daily in the Jones sand. The Root is purchasing all crude produced in wells which are not owned by the Lion Oil Refining Co., which is now running only its own production in its line to El Dorado.

Estimated Daily Production

Estimated daily gross production all companies week ending June 3, 1938:

NORTH LOUISIANA

	Barrels
Bellevue	650
Caddo light	4,030
Caddo heavy	2,440
Converse	655
Cotton Valley heavy	90
Cotton Valley light	*8,140
De Soto and Red River	1,445
Elm Grove	315
Haynesville	2,905
Holly	80
Homer	2,650
Lisbon	8,000
Pleasant Hill	105
Rodessa	38,725
Sarepta-Carterville	310
Sligo	790
Sugar Creek	330
Urania	2,850
Zwolle	1,775
Total	76,245

SOUTH ARKANSAS

Buckner	710
Champagnolle	1,165
El Dorado	1,835
Lisbon	270
Miller County	390
Nevada	630
Rodessa	7,135
Schuler	9,360
Smackover light	2,075
Smackover heavy	16,315
Stephens	570
Troy	1,225
Urbana	1,210
Village	425
Total	43,315

Texas side of Rodessa field 38,128 bbls. daily.

*3,925 bbls. is distillate.

Southwest Texas Fields

(Continued from Page 68)

Development Co., perforated casing 4,925-35 feet, 50 bbls., eighth-inch choke.

Webb County

Killam field: O. W. Killam No. 29 Garcia, 2,013 feet, 135 bbls. pumping.

Oilton field: Windsor Oil Co. No. 3-A McLandruk, perforated casing 1,950-55 feet, 20 bbls. pumping.

Zapata County

Charco Redondo field: Ferry and Covery, 1,085 feet, abandoned.

Victoria-Calhoun Counties

Heyser field: George Echols No. 1-B Lander, perforated casing 5,485-92 feet, 12 bbls. an hour, three-sixteenths inch choke. Gulf Oil Corp. No. 3 R. R. Bonner, perforated casing 5,460-63 feet, gas well. Portilla Drilling Co. No. 17-C Welder, sand 5,465-69 feet, 97 bbls., eighth-inch choke. Sinclair Prairie Oil Co. No 14 W. H. Bennett, perforated casing 5,485-95 feet, 163 bbls., 9/64-inch choke.

Denver Pool Extended and New Field Seems Probable

By MITCHELL TUCKER

FORT WORTH, Tex., June 6.—A half-mile Denver pool extension, another indicated extension and a possible new field in Yoakum County; the probable failure of two previously expected field extensions in Cochran County; and the continued testing of Andrews County's 8,000-foot well were highlights in the field activity of the West Texas area over the past seven days.

North Basin Area

The Denver area of Yoakum County was extended a mile west when Gulf Oil Corp. No. 1 Futch, section 796, after an 8,000-gallon acid treatment, flowed 425 bbls. of oil in 24 hours. The test, bottomed at 5,160 feet in lime, will be retreated with 6,000 gallons of acid before an official gauge is taken.

Also indicating an extension of the Denver area Continental Oil Co. No. 1 Dowell, section 896, 1½ miles in Yoakum County, Helmerich & Payne, Inc., and south and west of production, is preparing to cement off lost tools and set whipstock. The well had been flowing about 2 bbls. of oil hourly before tools were lost in the hole.

Magnolia Petroleum Co. No. 1 Webb, section 477, also in Yoakum County and about 2 miles southwest of Plains, is bailing approximately a barrel of oil an hour from a plugged-back depth of 5,380 feet. A pumping unit is being installed, and should this well prove a commercial producer, a new area would be opened for that part of the county.

Southeastern Hockley County has a new wildcat location, Skelly Oil Co. having staked No. 1 Ellwood Estate, League 15, Howard County School lands, about 10 miles east of Levelland. The test will seek the same pay horizon found in the Slaughter pool, 17 miles southwest.

Possibilities of a mile and one-half south extension to the one-well Dean pool of southeastern Cochran County were dimmed last week when Honolulu Oil Corp. No. 1-91 Dean, League 91, Lipscomb County School lands, was shut down waiting orders at a depth of 5,067 feet after encountering water from 5,060-67 feet. The well probably will be plugged.

Also in Cochran County, the Texas Co. No. 1 Mallet Land & Cattle Co. swabbed 5 bbls. of fluid, 18 per cent basic sediment and water an hour for 24 hours. The hole, bottomed at 5,058 feet, is shut down waiting orders.

J. L. Frick and Osage Drilling Co. No. 1 Atlantic Refining Co.-T. S. Riley, which two weeks ago extended the Seminole field of Gaines County 4 miles northwest, has been officially gauged at 135 bbls. of oil a day.

South Basin Area

In the southwestern part of Andrews County, testing continues at Frank S. Perkins and others No. 1 E. P. Cowden and others. This test, the deepest ever drilled in the area, is bottomed at 8,012 feet in the lower Permian formations. Baller was run six times and 1,000 feet of water was found to be in the hole. This, however, does not appear to have sulfur or salt content and operators are attempting to bail the hole dry. Should this prove unsuccessful a squeeze job will be attempted before perforating casing again and testing above.

In Howard County, the largest producer for the northeast extension area to the Chalk pool has been completed by H. L. Lockhart at his No. 1 Bob Scott, section 86, Block 29, W.&N.W. Survey, for an initial of 1,520 bbls. of oil daily. Pay was topped at 2,698 feet, with total depth at 2,865 feet.

In Runnels County, Homer Price, John Castor and others No. 1 J. C. Beddo, a wildcat 4 miles northwest of Ballinger, is preparing to acidize and test showings of oil encountered from 3,498 feet to 3,515 feet, which amounted to about ten 60-foot bailers full daily. The oil was encountered in the Palo Pinto lime, which produces in the Avoca pool in Jones County to the north.

Pecos County

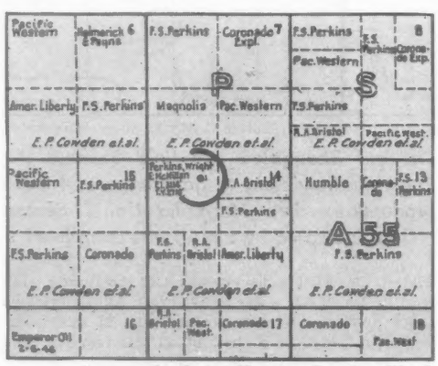
Magnolia Petroleum Co. No. 1-A McKee, an Ordovician wildcat test in the Imperial area of northern Pecos County, had cemented 7-inch casing at 6,165 feet, total depth, last week, and was rigging up cable tools to drill plug. The test is 63 feet in the Ellenburger of Lower Ordovician, which was topped at 6,102 feet.

WEST CENTRAL TEXAS

New wildcat tests were added the past week to two outlying counties of the West Central Texas district.

Six miles southeast of Sweetwater, in Nolan County, Ajax Drilling Co. of Dallas built derrick for a scheduled 4,500-foot combination rotary-cable tool test first staked as the Hantho-Nelson No. 1 E. W. Withers. It was taken over by Frank A. Oyster, C. W. Harkrider and associates, of Abilene, in a 5,000-acre block assembled by C. W. Hyde of Fort Worth. Spreads were taken by Magnolia, Ohio, Tide Water and Phillips. The location is in the center of the southwest quarter of section 65-21-T.&P.

Bert Fields, of Dallas, spudded and was drilling past 1,000 feet on No. 1 R. P. Pierson, southern Stonewall County wildcat 5 miles south of Aspermont. Projected to 4,000 feet, it is located in the center of M. D. Lee Preemption Survey.



Southwest Mapping Co., Fort Worth

The Frank S. Perkins and others No. 1 E. P. Cowden and others, 1½ miles from the New Mexico line, in southwestern Andrews County, is the deepest test ever drilled in this area

Percy Jones of Abilene was slated to spud No. 1 fee, in southern Stonewall County 12 miles north of Hamlin, a rotary contract for 3,500 feet having been taken by General Crude Oil Co. General Crude retains offset acreage, a part of the large block on which two wildcats were drilled last year on seismograph recommendation. The test is in the northwest corner of section 2, Austin & Williams Survey No. 348.

Humble Oil & Refining Co. staked No. 1 Dallas Joint Stock Land Bank 3 miles northeast of the old Noodle Creek field in southwestern Jones County for a 3,300-foot wildcat about 2 miles from its No. 1 Irwin, opener of a second and deeper pay zone for the Noodle Creek pool. The wildcat will be in M. Fragosa Survey No. 267. Humble holds approximately 13,000 acres on the east side of the field.

In Shackelford County's Ivy pool, Owens-Snebold Oil Corp. and others No. 5 D. A. Ivy, an inside well, flowed naturally by heads as it drilled 6 feet of saturated Palo Pinto lime to 3,207 feet. It is the first well for the pool completed on natural production, others having been acidized. Location is in section 159, B.B.B.&C. Survey. To the west, Danciger Oil & Refineries No. 3 J. E. McCown was flowing an estimated 50 bbls. hourly after a 2,000-gallon acid treatment to 3,211 feet in the same lime.

Fain-McGaha Oil Corp. and P. S. Kendrick No. 1 T. G. Hendrick, southeastern Haskell County wildcat, continued testing after pumping about 30 bbls. of oil and 40 bbls. of water a day from sand at 2,682-84 f. It had plugged back from 2,686 feet. The location is in section 104, Indianola Survey.

Wittmer Oil & Gas Properties No. 1 Williams and others, in northeastern Callahan County, showed 10 bbls. of oil and 50 bbls. of water after a 280-quart shot from 3,239 to 3,235 feet in the Caddo lime, after plugging back from an oil show at 4,077 feet and sulfur water at 4,115 feet in Ellenburger lime. Two miles northeast of Putnam, it is in T.E.&L. Survey 2269.

Hughes Petroleum Co. cemented 4,200 feet of 7-inch casing in No. 1 C. D. Straley, first offset to the southwestern Callahan County Ordovician pool discovery of last February, and was rigging spudder to drill an additional 150 feet into the Ellenburger lime. Located 1,800 feet southeast of the pool opener, it is 1,880 feet from the north and 660 feet from the west lines of George W. Denton Survey No. 370.

PANHANDLE DISTRICT

Wildcatting interest in the Panhandle turned to the Ellenburger County test in Potter County announced last week by Sinclair Prairie Oil Co. and Parcomis Oil Co., on the William H. Bush lands, section 23, Block 6, which is situated about 14 miles northwest of Amarillo. The test is projected to 8,000 feet, and will be upon a 20,000-acre block jointly owned by the operators. This structure already has been proven productive of gas from the Permian, and a portion of it underlies the government's helium plant and wells in the Panhandle.

WEST TEXAS COMPLETIONS

(24-hour gauges)

Andrews County

Humble Oil & Refining Co. No. 43 J. S. Means, 4,417-5,420 feet, 720 bbls. H. C. Wheeler No. 1 Gardner, dry and abandoned at 4,647 feet.

Cochran County

Devonian-Honolulu-Cascade No. 1-B-17 Duggan, 4,994-5,060 feet, 222 bbls. Helmerich & Payne No. 1 Westheimer & Daube, dry and abandoned at 5,205 feet.

Crane County

Superior Oil No. 8 Hughes, 2,245-85 feet, 86 bbls.

Dawson County

Atlantic No. 1 Scanlon, dry and abandoned at 4,965 feet.

Ector County

Barnsdall No. 13 Cowden, 4,046-4,170 feet, 1,701 bbls.; No. 5 Johnson, location abandoned. Carter & Naylor No. 3 Parker, 4,060-4,237 feet, 705 bbls. Cities Service No. 5 Bagley, 4,094-4,268 feet, 1,223 bbls. Humble Oil & Refining Co. No. 8-B Cowden, 4,154-85 feet, 798 bbls. Landreth Oil No. 2-J Scarbauer, 4,142-4,200 feet, 470 bbls. Lee Petroleum Co. No. 8 T. & P. Land & Trust, 4,084-4,180 feet, 2,255 bbls. Mid-Continent No. 3 Slator, 4,180-4,275 feet, 385 bbls. Oil Well Drilling No. 4-A Cowden, 4,060-4,243 feet, 709 bbls.; No. 5-A Cowden, 4,063-4,240 feet, 1,022 bbls.; No. 3-B Cowden, 4,080-4,237 feet, 1,719 bbls. Texas Pacific Coal & Oil Co. No. 23 Scar-

bauer, 4,200-4,256 feet, 1,589 bbls.; No. 29 Scarbauer, 4,189-4,240 feet, 1,115 bbls. L. H. Wentz No. 8-D Parker, 4,048-4,230 feet, 976 bbls.

Gaines County

Blackstock Oil No. 1 Wasson, 4,889-4,977 feet, 1,232 bbls. C. M. Cope No. 1 Riley, 5,071-98 feet, 135 bbls.

Finley & Cherry No. 1 P. W. Dolmont, dry and abandoned at 4,923 feet.

Garza County

N. Richards No. 1 K. Staker, dry and abandoned at 3,000 feet.

Howard County

Continental No. 9-A Clay, 2,454-2,530 feet, 272 bbls. Moore Brothers No. 1-D T. & P. Land & Trust, dry and abandoned at 2,900 feet.

Kent County

Thad A. Bryant, Jr. No. 1 Haggins, abandoned location; No. 1 House, abandoned location.

Loving County

Standard of Texas No. 8 Allen, abandoned location.

Pecos County

Childress Royalty No. 1 Mid-Continent & Shearer, dry and abandoned 1,518 feet.

Pecos Onondaga Corp. No. 1-B W. T. Shearer, dry and abandoned at 1,699 feet. Union Oil & Mining Co. No. 3-A Magnolia, 1,765-1,946 feet, 400 bbls. Phillips H. Brown No. 20 J. H. Tippett, 513-31 feet, 31 bbls.

Upton County

Basin Oil No. 3-A Baker, 2,302-88 feet, 112 bbls. Continental Oil No. 18 Reese, 2,275-2,350 feet, 440 bbls. Gulf Oil Corp. No. 1, 2,222-24 feet, 261 bbls. Humble Oil & Refining Co. No. 18-B Ricker, 2,432-61 feet, 282 bbls.; No. 23-B Ricker, 2,458-64 feet, 374 bbls. Texas Co. No. 40 King, dry and abandoned 2,646 feet.

Ward County

Gulf Oil Corp. No. 93 Estes, 2,446-2,655 feet, 2,252 bbls. Humble Oil & Refining Co. No. 38 Richter, 2,828-2,913 feet, 897 bbls. Sahare Oil Corp. No. 1 Johnson, 1,925-2,022 feet, 126 bbls. Sinclair Prairie No. 12 Archenhold, 2,515-3,020 feet, 405 bbls.

Winkler County

Gulf Oil Corp. No. 66 Daugherty, 2,900-2,995 feet, 419 bbls. Magnolia Petroleum Co. No. 154 Walton, 2,835-2,950 feet, 2,103 bbls. Richardson Oil No. 10-B Humble-Walton, 3,312-83 feet, 200 bbls. Stanolind-Westbrook No. 5 Hendrick, temporarily abandoned location; No. 1 Hendrick, temporarily abandoned location.

Yoakum County

Honolulu Oil No. 5-677 Bennett, 5,110-5,260 feet, 1,191 bbls. Toddie L. Wynne No. 5 Willard, 4,817-5,001 feet, 481 bbls.

WEST CENTRAL TEXAS COMPLETIONS

Jones County

Humble Oil & Refining Co. No. 9 J. W. Hollums flowed 427 bbls. of oil naturally in 4½ hours through three-fourths inch choke from 3,233-43 feet, total depth. Luther A. Hedrick No. 1 W. D. Baker, abandoned dry at 2,475 feet, total depth.

Shackelford County

Jones & Stasney No. 2 Merrick Davis, abandoned dry at 1,750 feet, total depth. Charter Oil & Gas Co. No. 13 N. M. Mims, abandoned dry at 1,672 feet, total depth. Roeser & Pendleton No. 2 J. P. Morris, 1,000,000 feet of gas a day from 1,585 to 1,610 feet, total depth. Healey & Walter No. 1-A W. P. Newell, abandoned dry at 1,811 feet, total depth.

Haskell County

Forest Development Corp. No. 2 A. E. Pardue, flowed 406 bbls. of oil in 6½ hours naturally from 2,804-13 feet, total depth.

Callahan County

Goodnight & Henderson No. 1 Ace Hickman, abandoned dry at 637 feet, total depth.

PANHANDLE COMPLETIONS

Carson County

British American No. 5 Block, 2,960-3,104 feet, 438 bbls. a day. Gulf Oil Corp. No. 24 Cooper, 3,065-3,191 feet, 212 bbls. a day. Panhandle Eastern Pipe Line Co., gas pay 2,389 to 2,749 feet, 46,159,000 feet initially. Sinclair Prairie No. 18 Cooper, 3,062-3,091 feet, 475 bbls. a day.

Gray County

Magnolia Petroleum Co. No. 10 Haggard, 3,230-80 feet, 283 bbls. a day. Stanolind Oil & Gas Co. No. 5 Saunders, 2,950 to 3,100 feet, 388 bbls. a day.

Hutchinson County

Drilling & Exploration Co. No. 19 Watkins, 2,940 to 3,061 feet, 367 bbls. a day. Midstates Oil Co. No. 10 Wittenburg B, 2,700 to 2,734 feet, 746 bbls. a day. Phillips Petroleum Co. No. 32 Cockrell Ranch, 2,900-3,019 feet, 550 bbls. a day. Cy Rieger and others No. 3 Perkins Dial A, 2,970-3,011 feet, 290 bbls. a day.

Kansas Fields

(Continued on Page 73)

tion 29-15-13w, Trapp district, Russell County, made potential of 2,544 bbls. of oil from Arbuckle lime at 3,308 feet, total depth.

Gulf Oil Corp. No. 12 Michaelis, NE SW SW section 32-15-13w, found Arbuckle lime at 3,341 feet, total depth 3,352 feet, and made potential of 1,599 bbls. of oil.

Ellis County

Another large producer was completed in the Bemis field, Ellis County, at Magnolia Petroleum Co. No. 13 Johansen, NW NE SE section 22-11-17w. It found Arbuckle lime at 3,402 feet, was bottomed at 3,404 feet, and made potential of 2,587 bbls. of oil.

McPherson County

Ohio Oil Co. No. 10 Decker, SW SE NE section 20-21-1w, Graber pool, McPherson County, found lime pay at 3,371 feet, total depth 3,355 feet, and made potential of 498 bbls. of oil daily.

Cowley County

McKnab & Blair No. 1-A Hittle, SW SE NE section 21-31-4e, Hittle area, Cowley County, topped Arbuckle

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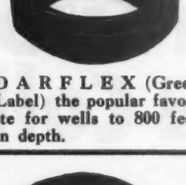

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HOUSTON, TEXAS

lime pay at 3,280 feet, was bottomed at 3,284 feet, and made initial potential of 1,220 bbls. of oil daily.

Graham County

Continental Oil Co. and Cities Service Oil Co. No. 1 Clark, SE NE SW section 10-9-21w, Graham County location, was reported abandoned.

Greenwood County

C. C. Whitaker No. 1 Ellingson, C S half SW SE section 8-28-11, Severy area, Greenwood County, found pay at 1,201 feet, total depth 1,227 feet, and was estimated good for 12 bbls. of oil daily.

C. A. Aikman & Sons No. 4 Meyers, C NE SE section 10-24-12, Virgil area, pumped 6 bbls. of oil daily from pay topped at 1,790 feet, total depth 1,828 feet.

Estimated Daily Production

Estimated daily production for Kansas for the week ending June 4, and for the preceding week, was as follows:

	Barrels	
	June 4	May 28
Oxford City	1,250	1,225
Burrton	9,825	9,975
Ritz-Canton	4,025	5,750
Graber	1,875	1,600
Hollow-Nikkel	3,025	3,100
Lerado	1,200	1,150
Voshell	2,225	2,575
Wellington	800	700
Ellsworth County:		
Lorraine	2,700	2,375
Other pools	1,140	1,215
Rice-Barton counties:		
Bloomer	1,875	2,275
Chase	3,900	4,050
Geneseo	1,650	1,500
Raymond	700	825
Silica	9,025	9,325
Silica-South	1,375	1,475
Keesling	725	850
Wherry	3,100	3,975
Miscellaneous Rice	2,245	3,140
Miscellaneous Barton	5,105	4,280
Russell County:		
Fairport	1,945	1,905
Gorham	1,505	1,455
Russell	875	940
Sullivan	6,210	5,050
Trapp	4,625	6,205
Miscellaneous Russell	6,395	5,525
Sedgwick County:		
Valley Center	1,010	985
Miscellaneous	2,790	2,780
Ellis County:		
Bemis	2,550	5,125
Miscellaneous	2,070	2,535
Kingman County	542	620
Stafford County	3,575	2,970
Greenwood County	9,125	9,350
Butler County	13,875	14,000
Other fields	29,963	22,745
Total Kansas	138,225	143,550

Woodson County

Oko Oil Co. No. 3 Headley, NE NW NW section 33-23-14, Woodson County, had pay at 1,672 feet, total depth 1,686 feet, and pumped 8 bbls. of oil daily.

C. L. Sheedy and others No. 15 Klick, SE NE SW section 20-25-14, pumped 30 bbls. of oil daily from pay found at 1,408 feet, total depth 1,445 feet.

Same operators' No. 8 Tipton, NE SE NW section 28-25-14, found pay at 1,419 feet, was bottomed at 1,460 feet, and pumped 35 bbls. of oil daily.

Barber County

Barbara Oil Co. No. 2 McKee, C W half NE section 28-33-13w, Medicine Lodge area, Barber County, produced 5,500,000 feet of gas daily and was completed at 4,890 feet, total depth. Pay was found at 4,604 feet.

Stevens County

Republic Natural Gas Co. No. 1 Hamilton, C N half section 15-35-38w, Hugoton district, Stevens County, was completed for 10,000,000 feet of gas daily at 2,830 feet, total depth.

Oklahoma Fields

(Continued from Page 77)

Sooner Oil Co. No. 1 Davis, NW NE SE section 8-18-12, was dry and abandoned at 2,190 feet, total depth. Strozier Drilling Co. No. 5 Atkins, SW NW SW section 12-16-11, was dry and abandoned at 2,385 feet, total depth.

Muskogee County

J. M. Foltz No. 1 Fewell, NW SE NE section 28-15-17, Muskogee County, was completed as a 6-bbl. pumper at 2,082 feet, total depth.

Tulsa County

A. Pepis No. 10 Harrison, C S half SW SE section 15-18-12, Tulsa County, was completed as a 5-bbl. pumper at 1,608 feet, total depth.

E. H. Brady No. 1 Bruner, NW NW NE section 27-17-13, was dry and abandoned at 2,069 feet, total depth.

W. E. Hardesty No. 1-A Davis, SE NE NW section 26-19-12, a recent completion, had oil sand at 1,172-1,202 feet, total depth 1,208 feet, and pumped 5 bbls. of oil daily.

Dundee Pipe & Supply Co. No. 1-A Ramsey, NW NW SE section 11-17-13, was dry and abandoned at 1,515 feet, total depth. Monarch Royalty Corp. No. 1 Childers, NE SW NW section 11-17-14, an old well, was dry and abandoned after deepening from 1,414 feet to 1,436 feet.

Okmulgee County

K. & K. Oil Co. No. 4 fee, C N half NW section 23-14-12, Okmulgee County, was bottomed at 1,760 feet and pumped 5 bbls. of oil daily.

J. L. Selby No. 8-A Doneghy, SE NW NE section 3-14-14, pumped 5 bbls. of oil daily from pay at 525 feet.

Browning & Potter No. 1 Watson, NE NE NW section 5-13-14, was completed as a 2-bbl. pumper at 1,720 feet, total depth.

R. F. Harman No. 8 Newhouse, NW NE NW section 20-12-12, was dry and abandoned at 2,920 feet, total depth.

Vierson Drilling Co. No. 4 Clark, NW SW NW section 6-14-13, a recent Okmulgee County completion, found Dutcher sand at 2,085 feet, total depth 2,098 feet, and produced 65 bbls. of oil daily.

C. E. Beal and others No. 1 Sarvorhie, SW SW NW section 27-15-11, produced 12 bbls. of oil daily from Tanaha pay at 2,080-2,100 feet, total depth 2,901 feet.

Oklahoma Oil Corp. and others No. 1-A Bird, SW SE NW section 5-12-12, was dry and abandoned at 2,405 feet, total depth.

Okfuskee County

Helmerich & Payne No. 3 Micco, SW NE SW section 25-10-10, Okfuskee County, was dry and abandoned at 1,200 feet, total depth.

Garvin County

Samedan Oil Co. No. 2 Murray, SE NW NW section 32-1n-3w, Tussy pool, Garvin County, had sands from 3,008 feet, total depth 3,056 feet, and pumped 44 bbls. of oil in eight hours.

Magnolia Petroleum Co. No. 2 Cowan, NW NW SW section 15-1n-3w, an old well in the Robberson pool, was deepened from 1,335 feet to sand at 1,746-58 feet, total depth, and pumped 70 bbls. of 24-gravity oil daily.

Carter County

Shell Petroleum Corp. No. 20 Horton, SE SW NE section 6-4s-3w, Healdton field, Carter County, had sands from 1,092 feet, total depth 1,233 feet, plugged back to 1,229 feet, was shot, pumped 102 bbls. of oil in 16 hours and was completed, pumping 44 bbls. of oil daily.

Stephens County

L. A. Wilkins and others No. 12 Crump, NE cor. section 15-2s-5w, Stephens County, had sands from 814 feet, total depth 884 feet, and pumped 8 bbls. of 23-gravity oil daily.

Carl Carter No. 1-A Warden, SW NW NE section 34-1s-5w, was dry and abandoned at 1,945 feet, total depth.

Comanche County

W. O. Swain No. 1 School Land, SW SE SW ... 20-2n-10w, Lawton area, Comanche County, had a hole full of water from 1,535-58 feet and was dry and abandoned at 1,596 feet, total depth.

East Texas Fields

(Continued from Page 78)

feet, 75 bbls. Magnolia Petroleum Co. No. 22 W. P. Moore, 3,644-3,704 feet, 80 bbls. J. Schulman No. 8 W. H. Smith, 3,704-04½ feet, 15 bbls.

Upshur County—Longview Area

Magnolia Petroleum Co. No. 17 R. A. Adkins, 3,715-18 feet, 35 bbls. Bobby Manziel No. 8 Mackey, 3,750-51 feet, 35 bbls.

Upshur County

Ellis Oil No. 6 C. J. Mackey, 3,683-86 feet, 45 bbls. General American No. 8-A A. J. Sanders, 3,586-88 feet, 40 bbls. Magnolia Petroleum Co. No. 14 N. W. Blackwell, 3,682-85 feet, 50 bbls. Sabinas Oil Corp. No. 18-C T. M. Collins, 3,660-61 feet, 40 bbls.

Smith County

Everett No. 11 F. Cole, 3,713-14 feet, 80 bbls.

California Field Report

By
L. P. STOCKMAN

Crude Oil Output at Lowest Point Since July Last Year

LOS ANGELES, Calif., June 6.—State production of crude oil, reflecting suspensions in the Lake View section of the Midway-Sunset field, additional curtailment in the Long Beach section of the Wilmington field, and a general tightening up in other areas, reached the lowest point last week since July of last year. The total daily production dropped to 675,000 bbls. Production is expected to swing up again this week, with operators in the Lake View section ending their 10-day shutdown. This area had been averaging about 19,000 bbls. a day for the past several months.

There were only a few large completions during the week and in every case production was cut back immediately. Only a few wells were finished in the Wilmington field, but operators probably will make up for lost time next week as eight potential producers are nearing completion. Drilling operations appear to be leveling off in the Wilmington field, but renewed activity is marking work in the Montebello and Torrance fields with additional development expected to get under way in the Rosecrans field.

The recent price cuts and drastic curtailment of pipe line runs has resulted in restricted drilling in the Santa Maria Valley field. Union Oil Co., which announced its intention of ceasing all purchases in the Santa Maria Valley field on June 1, has revised its original intention and has been running 5,000 bbls. a day, which is being allocated on the same basis as that which prevailed during April and May.

Montebello

The Montebello field of Los Angeles Basin is showing increased drilling and will register a further gain in development work as the productive limits of the field are extended westward. Several new wells are under way in the reservoir section of the field and another compition or two will push development work still further westward. The productive limits of this new western extension of the Montebello field has not yet been defined in any direction. Development work has been restricted for the most part to the new zone discovered by St. Helens Petroleum Co. in the lower Pliocene although two excellent wells have been finished in the upper Miocene.

No. 1 Manz of McVicker & Rood in the western end of the extension came in wet and has been allowed to produce since completion as it is making 1,150 bbls. of oil a day. The presence of water in this well is due to the fact that the operator took in the entire zone instead of producing from the upper and lower part of the zone. No. 25 Monterey of St. Helens Petroleum Co., a northerly offset to this well, was completed a few weeks ago, cutting less than 1 per cent from the same zone, indicating that clean production can be developed in the Pliocene in the western end of the field provided care is exercised in cementing. Standard Oil Co. definitely found the center of the zone wet and is making preparations to produce from the upper and lower part of the zone.

St. Helens Petroleum Co. completed No. 26 Monterey, flowing 3,278 bbls. of 37.1-gravity oil and 1,200,000 feet of natural gas a day from the Pliocene at 5,775 feet, after finishing the hole with 352 feet of 5¾-inch liner, including 351 feet of perforated. This new well, brought in flowing through a 31/64-inch bean, showed a tubing pressure of 500 pounds and a casing pressure of 1,450 pounds. In the early part of the week the company was preparing to abandon No. 3 Monterey when the well began flowing 250 bbls. a day from the upper zone following discharge af a shot to loosen the formation preliminary to pulling the casing.

Wilmington

Development work in the Wilmington field included completion of four new wells and expansion of drilling operations by Richfield Oil Corp. on the Pacific Dock lease and by Union Pacific Railroad Co. as well as the starting of additional work in the extreme northwestern end of the field west of Avalon Boulevard. General Petroleum Corp., discoverer of the Wilmington field, and Hancock Oil Co., an independent producer and refiner, have tapered off work to some extent and each will probably run about three strings of tools for another 60 days. General Petroleum Corp. completed two wells that showed an aggregate initial daily production of 1,552 bbls. and it should have two additional potential producers ready for tests within another 10 days. The new producers were No. 3 Southern Pacific, finished flowing 1,160 bbls. of 24.4-gravity oil a day from 4,125 feet, and No. 4 Harbor Community, completed flowing 392 bbls. of 18.7 gravity oil daily from the Ranger zone at 2,905 feet. The former was finished with a combination of 6⅝-inch and 8⅝-inch landed on bottom and cemented through perforations at 3,040 feet, 3,420 feet, and 4,000 feet. The 6⅝-inch liner landed on bottom carried perforations at 3,040-3,260 feet, 3,420-3,580 feet, 3,620-3,700 feet, 3,740-3,820 feet, and at 4,000-4,125 feet, and the 8⅝-inch had perforations at 2,535-2,910 feet opposite the Ranger zone.

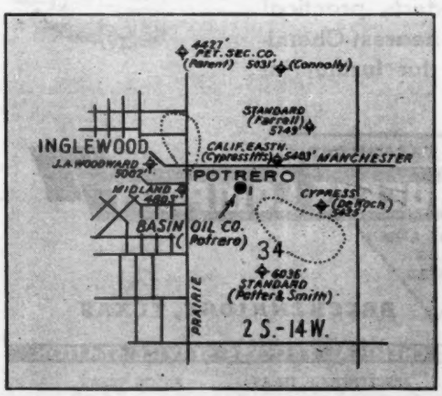
Union Pacific Railroad completed an excellent well on Terminal Island when No. 6-E was brought in flowing 380 bbls. of 18.4-gravity oil a day from the Ranger zone and 3,050 bbls. daily from the Upper Terminal zone, which produces an oil testing 27.5 degrees. No. 6-E was bottomed at 3,910 feet and finished with 494 feet of 6⅝-inch liner cemented through perforations at 3,466 feet and carrying 60-mesh perforations at 3,468-3,569 feet, 3,579-3,610 feet, 3,620-3,651 feet, 3,671-3,779 feet, and at 3,799-3,910 feet. A 6⅝-inch flow string was hung above the top of the 6⅝-inch liner. Union Pacific's next completion in the Wilmington field should be No. 2 P. D., as the bit is in the pay at 3,410 feet. The company's No. 9-E also should be an early completion. Hancock Oil Co. has completed No. 4-A Harbor flowing 2,480 bbls. from the Ranger and Terminal zones.

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	May 27		May 20			
Intercoastal-domestic—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....	62,745	7,964	203,139	.....
Diesel and gas oil	.....	.....	.....	.....	.....	176,726
Gasoline	112,030	16,004	66,101	9,443	1,218,188	1,299,476
Kerosene	.....	.....	.....	.....	199,453	198,231
Foreign exports—						
Crude oil	584,656	83,522	391,346	55,907	10,515,625	5,349,623
Fuel oil	417,649	59,664	190,755	27,251	3,527,263	5,657,296
Diesel and gas oil	174,051	24,864	23,304	3,329	2,313,047	2,816,423
Gasoline	103,657	14,808	77,305	11,044	2,727,099	2,845,299
Kerosene	.....	.....	.....	.....	499,574	933,625
Other unfinished oil	.....	.....	.....	.....	.....	402,700
Coastwise-domestic—						
Crude oil	127,952	18,279	147,681	21,097	4,708,020	2,620,159
Fuel oil	168,244	24,035	160,379	22,911	4,501,618	5,996,867
Diesel and gas oil	62,263	8,895	.....	.....	704,469	992,669
Gasoline	484,907	69,272	120,213	17,173	6,171,527	5,362,709
Kerosene	.....	.....	.....	.....	118,286	69,559

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic—						
Diesel and gas oil	.....	.....	.....	.....	178,662	152,932
Gasoline	.....	.....	.....	.....	9,499	25,778
Asphalt	.....	.....	.....	.....	284,401	65,790
Lubricants	2,996	428	.....	.....	6,005	9,847
Foreign exports—						
Crude oil	199,113	28,445	147,778	21,111	2,504,589	1,129,153
Fuel oil	71,741	10,249	.....	.....	903,964	726,517
Diesel and gas oil	93,996	13,428	41,094	5,871	734,598	1,070,507
Gasoline	188,124	26,875	.....	.....	1,864,564	2,425,646
Kerosene	91,986	13,141	.....	.....	393,233	301,637
Lubricants	.....	.....	28,498	4,071	177,971	263,364
Coastwise-domestic—						
Fuel oil	216,437	30,920	143,740	20,534	2,747,100	2,602,599
Diesel and gas oil	40,185	5,741	36,492	5,213	660,053	280,247
Gasoline	235,607	33,658	30,121	4,303	2,598,719	1,736,390
Kerosene	.....	.....	.....	.....	257,363	72,094



Basin Oil Co. has completed an excellent well at the northwest end of the Potrero field in Los Angeles Basin and may have found the real accumulation which operators have sought since 1930

Rio Bravo

Another exceptionally large flowing well was completed in the Rio Bravo field of Kern County and two more wells are scheduled for completion within the next 15 days. The new producer was Superior Oil Co.'s No. 3 Wagner in section 35-28-25, which was finished flowing 4,905 bbls. of 37.5-gravity oil and 6,734,000 feet of natural gas a day from the Rio Bravo sand at 11,582 feet. This well is the first to drill entirely through the Rio Bravo zone.

Superior's No. 3 Wagner was brought in flowing through a 20/64-inch bean doing 1,595 bbls. a day, but when the beam was opened up to 50/64-inch production showed a substantial increase. Present pressures are 1,150 pounds on the tubing and 1,950 pounds on the casing. General Petroleum Corp. has cemented No. 2 Wagoner on top of the pay at 11,263 feet and will drill out the cement on the 7-inch casing within a few days. Union Oil Co. has been making good progress with No. 2-34 Kern County Land in section 34-23-25 in cutting out the casing above the point at which it collapsed and pinned in the tubing. Approximately 6,000 feet of 7⅝-inch casing has been cut out and recovered through the use of an outside cutter and washpipe. This well, bottomed at 11,204 feet, was standing ce-

mented about 15 feet above the top of the pay when the casing collapsed during a water shutoff test.

Ten Section—Greeley

Standard Oil Co. has severely curtailed development work in the Greeley field and has only two wells under way. One is No. 11-2 Kern County Land, which recently tested wet with bottom of the hole at 11,520 feet and bottom of the 6⅝-inch water string at 11,400 feet. This well, the first deep test drilled in the Greeley field in search of the deep Rio Bravo sand, failed to develop commercial production in the upper or Stevens sand due, it is believed, to a lenticular condition in the Stevens zone. It has cored the Rio Bravo zone and is expected to show commercial production provided the water problem is overcome. Shell Oil Co. added another excellent producing well to its list of producers a few days ago when No. 47-30-B Kern County Land in section 30-30-26 was brought in flowing 2,955 bbls. of 33.7-gravity oil and 3,400,000 feet of natural gas daily from 8,220 feet.

San Joaquin Basin

Shell Oil Co. completed a relatively small well in the Mount Poso field field of Kern County when No. 6-A Matthews in section 4-27-28 was finished pumping 307 bbls. of 16.7-gravity oil a day from 1,671 feet. In the Midway-Sunset field, Berry & Ewing completed well No. 2 in section 31-32-24, pumping 40 bbls. of 14.3-gravity oil cutting 5 per cent from a depth of 1,221 feet. Ohio Oil Co. finished another excellent well in the Canal field when No. 6-E Kern County Land in section 14-30-25 was brought in flowing 2,480 bbls. of 36.9-gravity oil and 2,100,000 feet of natural gas daily from 8,262 feet. This new well extends the proven limits of the Canal field several hundred feet southward and automatically proves up three additional locations.

Richfield Oil Corp. is making preparations to conduct a seismograph survey of 5,181 acres which the company recently leased southeast of the own of Tupman and about 3 miles west of the Ten Section field. This acreage will be shot at several points. Standard Oil Co. of California has not yet logged the Stevens sand in its wildcat in the Uni district of Kern County down to the present depth, 8,320 feet, and present plans call for a continuance of drilling. Unless the pay is picked up sooner this well will be carried down to the Rio Bravo sand in the hope of developing deep production. Union Oil Co. and Continental Oil Co., with their respective deep discoveries at Rio Bravo and Wasco, have voided the results of several wildcats as many of these tests were not carried deep enough to prove conclusive. In the Kettleman North Dome field Standard has completed well No. 2-11-P in section 11-22-17 flowing 156 bbls. of 30.3-gravity oil a day from 8,380 feet. This well appears to be building up and may show increased production after it has cleaned itself out. Standard's deep test, No. 27-21-J in section 21-21-17, tested wet early in the week as it came in flowing 600 bbls. of salt water and 8,400,000 feet of natural gas a day. This well is bottomed at 10,919 feet, but was plugged back to 10,845 feet and has a 6⅝-inch water string landed at 10,715 feet.

Coastal Area

Drilling operations in the Santa Maria Valley field have shown a decline during the past few weeks, and Hancock Oil Co., Pacific Western Oil Co., Signal Oil Co. and several other operators will suspend development work immediately upon completion of wells now under way. Union Oil Co. has completed No. 2-2 O'Donnell in section 21-10-34, pumping 160 bbls. of 15.7-gravity oil daily from 5,240 feet and should have No. 1 McCoy-Cooney in section 27-10-34 tanking oil within a day or two. Early next week the company's drilling schedule will cease showing No. 1 Mallory in section 27-10-34 as it should be finished within a few days. No. 1 McCoy-Cooney has been completed at 5,285 feet, and drilling operations have been concluded on No. 1 Mallory at 5,021 feet. Both have been bottomed in the Franciscan basement, as is customary in this field. No. 9 Union Sugar of E. H. Moore, Inc., has cleaned up in good shape since completion test last week and has established a potential of 1,220 bbls. of 16.3-gravity oil daily from 4,762 feet.

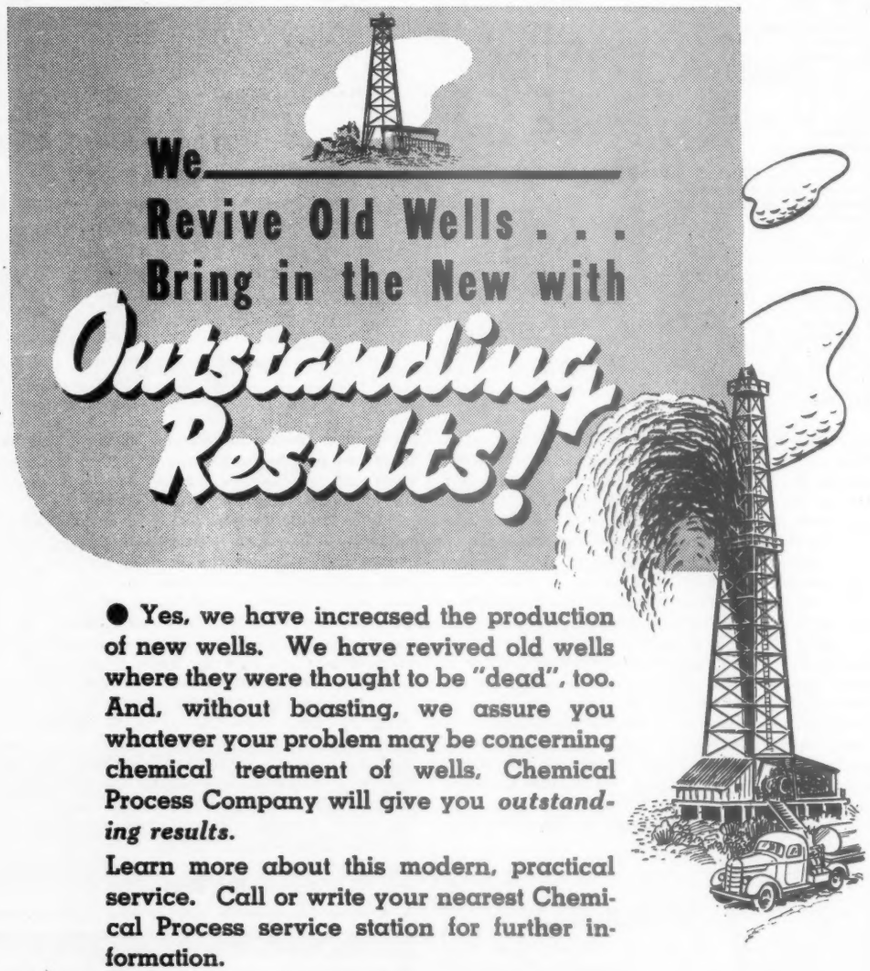
In the Gato Ridge field of Santa Barbara County, Barnsdall Oil Co. is preparing to drill two new wells in section 9-8-32, and one, No. 3 Tognazzini, should get under way within a few days. In the Gaviota district of Santa Barbara County, Wilshire Oil Co. is drilling ahead in No. 1 Hollister, a wildcat in section 35-5-33 at 4,043 feet, but has not yet found sufficient sand to make an oil well. In the Ventura Avenue field, Tide Water Associated Oil Co. is reaming No. 19 Ventura Land & Water preparatory to making a production test. This well is bottom at 9,227 feet and has a 9⅝-inch string of casing at 8,302 feet. General Petroleum Corp. has suspended drilling operations on No. 13 Notten following failure to develop commercial production. This well was drilled to 9,871 feet, but has been plugged back by stages to 8,948 feet. It has consistently tested wet.

Shell Oil Co. is putting the finishing touches on No. 37 Gosnell at 8,373 feet and should have it on production shortly. The Lloyd Corp., which is drilling a deep test east of production in the Ventura Avenue field, has passed the 6,800-foot level.

Los Angeles Basin

Ohio Oil Co. focused attention on the El Segundo field a few days ago by completing No. 12 Gough, flowing 690 bbls. of 25.2-gravity oil and 700,000 feet of natural gas daily from 7,411 feet following the landing of a water string at 7,341 feet. The completion of this good well is of outstanding importance because the field has been on the down grade for several months. The Gough property has not been overdeveloped, however, and this well should show sustained production. In the Rosecrans field, Superior Oil Co. completed No. 8 Maxwell, flowing 420 bbls. of 35.9-gravity oil and an undetermined quantity of natural gas from 7,683 feet, and in doing so extended the productive limits of the O'Dea zone southward.

Barnsdall Oil Co. completed an excellent producer in this field early in the week when No. 3 Trust was brought in flowing 1,371 bbls. of 36.2-gravity oil and 500,000 feet of natural gas a day from 7,789 feet. No. 3 Trust was finished with 576 feet of 5¾-inch liner, including 497 feet of 100-mesh screen landed on bottom. In the Torrance field Peters Royalty Co. has completed No. 1 Torrance pumping 10 bbls. of 26.8-gravity oil, but this well, finished at 5,023 feet, will require additional work as the output was still cutting 65 per cent at last reports and does not show any indication of cleaning up.



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Rocky Mountain Area

By
T. R. INGRAM

Test Started Near Lovington; Northeast Area Sees Activity

DENVER, Colo., June 6.—The Gulf Oil Corp. test to the granite in Cheyenne County, eastern Colorado, was abandoned at 6,360 feet. William A. Myers made location for a test on the Willow Creek dome in Moffat County.

The Shawnee district, Converse County, Wyoming, had three completions at shallow depths, one a gas well at 308 feet and the other two dry. The General Petroleum Corp. Cole Creek wildcat is swabbing 35 to 40 bbls. an hour. A. B. Cobb No. 3 Novick-Ong, outside the unitized area in Lance Creek, made 1,640 bbls. initial.

Two wells spotted on the north and south ends of the Cedar Creek anticline in eastern Montana. There were no completions or new operations in Cut Bank. Three wells were completed and one started in Kevin-Sunburst.

NEW MEXICO

An interesting wildcat in the Lovington area of Lea County claimed attention of New Mexico oil operators the past week. It was Continental Oil Co. and Hershback Drilling Co. No. 1 State, C SW SW section 29-16-37, 5 miles southeast of the town of Lovington. It is 4 miles northeast of the nearest test to be drilled in the area, Western Oil Co. No. 1 State, a dry hole at 5,216 feet. Work was due to start soon at the new wildcat.

Considerable interest has been evinced in a rank wildcat being drilled in northeastern New Mexico at Winston Marks No. 1 State, SE NW section 5-25n-24e, in Colfax County. It is 11 miles east of the town of Springer, on the east rim of the Raton Basin. Location is on the Rita Del Piano structure, geologized by the late Charles T. Lupton, Denver. It was bottomed at 1,200 feet in hard lime and operators were running 12½ inch casing to that depth at last report. It is being drilled with cable tools and is to go to 3,500 feet, into Pennsylvanian formation. Several major companies are reported checking and blocking acreage in Colfax, Union, Harding and Quay counties in the northeastern part of the state.

The newest pool opener in Lea County, Continental Oil Co. No. 1-J-2 State, C NW NE section 2-22-36, averaged 30 bbls. of oil an hour through casing on a recent eight-hour test. Gas gauged 8,750,000 feet. Best pay was found at 3,760-3,800 feet, total depth. Operators were running 2-inch tubing with packer under pressure. The new area eventually may become a 2½-mile northeast extension of the South Eunice pool.

The Vacuum area remained in the forefront of New Mexico field activity. Texas Co. No. 2-D State, C SW NW section 27-17-34, is a location 1 mile west of Vacuum production.

Phillips Petroleum Co. No. 6 Santa Fe, C SW SE section 21-17-35, indicated a possible 2-mile extension of the southeastern portion of the Vacuum pool. It had bleeding, oil saturated lime cores at 4,368-70 feet, 4,383-84 feet and 4,415-18 feet. The crew was drilling ahead below 4,491 feet.

Republic Production Co. staked location for No. 2 State, C SW SW section 32-17-35, a short distance southeast of the main Vacuum area.

Repollo Oil Co. No. 1 State, lease 197, SE cor. section 6-17-34, showing for a producer 4 miles northwest of Vacuum, was bottomed at 4,900 feet in lime and swabbed 27½ bbls. of accumulated oil at that depth.

Two of the six Lea County completions of the past week were in the Vacuum district. Completions were:

Texas Co. No. 3-O State, C SW NE section 36-17-34, Vacuum pool, topped pay at 4,678 feet, total depth 4,762 feet, and flowed 152 bbls. of oil in four hours.

Ohio Oil Co. No. 2 State-Warn, C NE SW section 31-17-35, Vacuum pool, flowed 121 bbls. of oil in two hours through tubing, with 600,000 feet of gas. Pay was topped at 4,300 feet, total depth 4,750 feet.

Culbertson & Irwin No. 6-A Humphrey, NE SW SE section 3-25-37, Langlie area, found pay at 3,307 feet, was bottomed at 3,445 feet, and flowed 40 bbls. of oil in two hours.

W. H. Street No. 4 Woods, C NE NE section 22-22-37, Penrose pool, had pay at 3,542 feet, total depth 3,686 feet in lime, was acidized and flowed 126 bbls. of oil daily.

Magnolia Petroleum Co. No. 1 Brunson-Argo, C NW NE section 9-22-37, Hardy area, flowed 160 bbls. of oil in 12 hours from pay topped at 3,622 feet, total depth 3,738 feet.

Stanolind Oil & Gas Co. No. 2-A Hill, Monument-Eunice district, topped pay at 3,695 feet and was bottomed at 3,785 feet. It flowed 111 bbls. of oil in 18 hours.

Lea County

Addison Oil Co. No. 2 Knight, C SW NW sec. 27-24-37. Drlg. 2,710 ft.

Amerada Pet. Corp. No. 3 Laughlin, C NW NE sec. 9-20-37. T.D. 2,855 ft.; set 8-in. 2,573 ft.

Amerada Pet. Corp. No. 2 State VA, C NW SW sec. 23-17-34. Drlg. 4,512 ft.

Amerada Pet. Corp. No. 2 James Stuart, C W½ SW NW sec. 14-25-37. T.D. 3,370 ft.; W.O.C.

Anderson-Prichard Oil Corp. No. 2 Langlie, SE sec. 8-25-37. Drlg. 3,420 ft.

Anderson-Prichard Oil Corp. No. 1 Wells, C SE SE sec. 5-27-37. Drlg. 3,610 ft.

Anderson-Prichard Oil Corp. No. 2 Wells, C SW SE sec. 5-27-37. Drk.

Atlantic Ref. Co. No. 1 State, C SE SW sec. 32-24-37. T.D. 3,437 ft.; drld. plug, 18,000,000 feet gas.

Cities Service Oil Co. No. 1-H State, C NE NE sec. 17-22-36. T.D. 3,884 ft.; prep. to deepen.

Continental Oil Co. No. 2-F-1 State, C SW NE sec. 1-21-36. T.D. 3,807 ft.; F. 20 B.O.P.D. with 2,000,000 ft. gas.

Continental Oil Co. No 1-J-2 State, C NW NE sec. 2-22-36. T.D. 3,800 ft.; F. 30 B.O.P.H. for 8 hrs.; to test.

Continental Oil Co. No. 1-B-15 Britt, C W½ NW NW sec. 15-20-37. T.D. 3,919 ft.; 7½ B.O. in 6 hrs.; rng. tbg.; to test.

Continental Oil Co. No. 3 Jack, C SE NE sec. 20-24-37. Drlg. 1,630 ft.

Continental Oil Co. No. 1-A-31 Marsh, SE sec. 31-20-39. Wildcat; T.D. 4,352 ft.; fsg.

Continental Oil Co. No. 5 Reed, C W½ NE SE sec. 23-20-36. T.D. 3,871 ft.; acdz. and F. 5 B.O.P.H. and 3,000,000 ft. gas; rng. tbg.

Continental Oil Co. No. 2 Sanderson, NE NE SW sec. 14-20-36. T.D. 3,750 ft.; to test Nat'l.

Continental Oil Co. No. 9 Sanderson, NE SE NW sec. 14-20-36. T.D. 3,746 ft.; W.O.C.

Continental Oil Co. No. 4-E-17 State, C SW NW sec. 17-22-36. T.D. 3,880 ft.; C.O.

Cranfill & Germany No. 1 Weir, C NE NE sec. 15-20-37. T.D. 4,210 ft.; S.D.O.

Culbertson & Irwin No. 4 Alston, SW SE NW sec. 26-25-37. T.D. 3,238 ft.; S.D.R.

Culbertson & Irwin No. 1 Dabbs, NE NE NW sec. 35-25-37. Drlg. 2,980 ft.

Culbertson & Irwin No. 1 Henry, C N½ NW SW sec. 26-25-37. Drlg. 375 ft.

Culbertson & Irwin No. 3 Liberty, C N½ NW SW sec. 3-25-37. T.D. 425 ft.; S.D. fuel.

Danglade & Clower No. 1 Glier, C SW NE sec. 32-22-37. T.D. 3,680 ft.; F. 124 B.O. in 48 hrs.; S.I.

L. E. Elliott No. 2 Elliott, NE NW SE sec. 26-20-36. T.D. 3,780 ft.; F. 5 B.O.P.H. for 12 hrs.; tstg.

A. R. Eppenauer No. 1 Stuart, NW NE NE sec. 22-25-37. T.D. 3,373 ft.; flwd. 15 B.O.P.H. at 3,321 ft.

J. E. Farrell No. 2-C Walden, C SE SW sec. 15-22-37. Drlg. 3,700 ft.

Great Western Prod. Co. No. 1-C State, C NE SW sec. 7-19-37. Drlg. 2,981 ft.

Gulf Oil Corp. No. 1 Alley, C NE SE sec. 10-23-37. T.D. 3,713 ft.; P.B. 3,688 ft.; S.D.O.

Gulf Oil Corp. No. 1 Boyd, sec. 23-22-37. T.D. 3,681 ft.; tstg.

Gulf Oil Corp. No. 4 Day, C E½ SW NW sec. 6-22s-36. Abd.

Gulf Oil Corp. No. 2-D Kutter, C SE SW sec. 8-19-37. T.D. 4,155 ft.; P.B. 4,100 ft.; S.D.O.

Gulf Oil Corp. No. 2 Ramsey, C SW SW sec. 27-21-36. T.D. 3,895 ft.; P.B. 3,871 ft.; F. 197 B.O. and 18 B.W. in 18 hrs.; S.I.

Humble O. & R. Co. No. 3-H State, C NW NW sec. 34-22-27. T.D. 3,560 ft.; S.D.W.

Humble O. & R. Co. No. 3 Williams, C SW NW sec. 34-24-37. T.D. 3,532 ft.

Jal Nat. Gas Corp. No. 2 Justis, NE sec. 20-25-37. T.D. 3,029 ft.; tstg.

Magnolia Pet. Co. No. 1 State G, NW NW NE sec. 34-17-34. T.D. 4,905 ft.; P.B. 4,794 ft.

Magnolia Pet. Co. No. 3-K State, C SE SE sec. 31-17-35. Drlg. 3,652 ft.

Magnolia Pet. Co. No. 2 State-Bridges, sec. 14-17-34. T.D. 4,593 ft.; flwd. 51 B.O. in 1 hr. naturally.

Magnolia Pet. Co. No. 3 State-Bridges, C NE NW sec. 26-17-34. Drlg. 2,220 ft.

Magnolia Pet. Co. No. 6 State-Bridges, C SW NW sec. 23-17-34. T.D. 4,755 ft.; pay 4,618 ft.; shot; C.O.

Magnolia Pet. Co. No. 7 State-Bridges, C SW NE sec. 23-17-34. T.D. 4,365 ft.; W.O.C.

Magnolia Pet. Co. No. 8 State-Bridges, C NW SE sec. 23-14-34. T.D. 4,365 ft.; W.O.C.

Maljamar O. & G. Co. No. 9 Baish, C NW NW sec. 21-17-32. T.D. 3,590 ft.; rng. csg.

Maljamar O. & G. Co. No. 4 Mitchell, C NE NE sec. 20-17-32. T.D. 3,760 ft.; rng. csg.

Maljamar O. & G. Co. No. 5 Mitchell, C NW NW sec. 19-17-32. Drlg. 2,375 ft.; S.S.O.

Jas. A. Mascho No. 2 Cloyd, C SW SW sec. 20-22-33. Loc.

C. T. McLaughlin No. 1 Polhamus, NE sec. 9-24-37. T.D. 3,672 ft.; S.D.O.

National Drlg. & Prod. Co. No. 1 Flint, C NE NE sec. 29-20-34. Wildcat; drlg. 3,710 ft.

Ohio Oil Co. No. 1 Kutter D, C SW SW sec. 18-19-37. Drlg. 3,625 ft.

Ohio Oil Co. No. 1 State-Fleming, NE cor. sec. 2-26-37. Drlg. 2,335 ft.

Ohio Oil Co. No. 1 State-McCallister, C SE SW sec. 25-17-34. C.&P.

Ohio Oil Co. No. 7 State-McDonald, C SW SE sec. 16-22-36. T.D. 3,871 ft.; C.O.

Parker Drlg. Co. No. 2 Irwin, C W½ NW SW sec. 35-24s-37. Drlg. 1,280 ft.

Paton Bros. No. 2 Wilkinson, C SE SE sec. 8-18-31. Loc.

Penrose & Rowan No. 1 Christmas, SE cor. sec. 28-22-37. R.U.M.

Lem Peters No. 1 L. J. May, C NW SE sec. 27-22-37. Drlg. 3,455 ft.

Lem Peters No. 1 T. O. May, C NW NE sec. 34-22s-37. Drlg. 1,985 ft.

Phillips Pet. Co. No. 3 Santa Fe, C SW NW sec. 5-18-35. Rig.

Phillips Pet. Co. No. 4 Santa Fe, C SW SE sec. 31-17-35. Drlg. 3,980 ft.

Phillips Pet. Co. No. 5 Santa Fe, C NW SW sec. 31-17-35. Drlg. 3,990 ft.

Phillips Pet. Co. No. 6 Santa Fe, C SW SE sec. 21-17-35. Drlg. 4,051 ft.; S.G. 4,046 ft.

Phillips Pet. Corp. No. 7 Santa Fe, C SE SW sec. 27-17-35. Loc.

Phillips & Pure No. 2 Woolworth, C NE SE sec. 33-24-37. Loc.

Plains Prod. Co. No. 1 Humphreys, NE sec. 3-25-37. Loc.

Repollo Oil Co. No. 2 Hair, NW SW NW sec. 9-24-37. Drlg. 2,285 ft.

Repollo Oil Co. No. 1 State, SE cor. sec. 6-17-34. Drlg. 4,756 ft.; swbg. 20 B.O.P.D.

Repollo Oil Co. No. 6-B Whitten, NW NW NE sec. 4-24-36. Loc.

Republic Prod. Co. No. 1 State, C NW SW sec. 32-17-35. Drlg. 245 ft.

Republic Prod. Co. No. 2 State, C SW SW sec. 32-17-35. Loc.

Rowan & Nichols No. 1 State, C NE NW sec. 22-10-37. Drlg. 2,150 ft.

J. M. Rush No. 2 Wantz, C NW SW sec. 21-21-37. T.D. 160 ft.; W.O.C.

Harry J. Schafer No. 1-A State, C E½ NW NE sec. 26-20-36. T.D. 3,865 ft.; swb. some oil; P.B. 3,845 ft.; retreated and swb. 10 B.O.P.D.; treated and swbg.; no gauges.

Shasta Oil Co. No. 2 Woolworth, NE NW NW sec. 28-24-37. T.D. 3,048 ft.; drlg. by tools at 2,974 ft.

Shell Pet. Corp. No. 4-E State, C SW NW sec. 12-20-36. Drlg. 3,800 ft.

Shell Pet. Corp. No. 2-C State, NE SE NE sec. 24-21-35. Drk.

Skelly Oil Co. No. 5 J. B. Baker, C SE NW sec. 27-22-37. T.D. 3,620 ft.; tstg.

Skelly Oil Co. No. 7 Coats, C NW SW sec. 3-24-36. Drk.

Skelly Oil Co. No. 3 G. W. Sims, C NW NE sec. 9-23-37. T.D. 3,642 ft.; C.O.

Skelly Oil Co. No. 1-C R. R. Sims, sec. 3-23-37. Drlg. 3,688 ft.

Skelly Oil Co. No. 1-E W. P. Sims, C NW NE sec. 10-23-37. T.D. 3,625 ft.; flwd. 452 bbls. in 24 hrs.

Skelly Oil Co. No. 1-L State, C SW NW sec. 2-25-37. Drlg. 2,870 ft.

Stanolind O. & G. Co. No. 3-B Farnsworth, C E½ NE SW sec. 7-26-37. Loc.

Stanolind O. & G. Co. No. 3-A Hill, SE SE NW sec. 6-21-37. Loc.

Stanolind O. & G. Co. No. 5-B Myers, C NE SW sec. 9-24-37. T.D. 3,280 ft.; drlg. plug.

Stanolind Oil Co. of Texas No. 1 State, C SW NW sec. 32-17-35. Loc.

W. H. Street No. 2 Farrell, C NW SE sec. 22-22s-37. T.D. 2,365 ft.; S.D.R.

Texas Co. No. 3 Black, C NW NE sec. 21-24-37. Drlg. 2,400 ft.

Texas Co. No. 2 Cagle, SE NE NE sec. 9-26s-37. Loc.

Texas Co. No. 1 Corbin, C NW SW sec. 19-18-33. T.D. 5,118 ft.; P.B. 5,112 ft.; R.U.

Texas Co. No. 4 Fristoe, NW NE SE sec. 3-25-37. T.D. 3,302 ft.; C.O.

Texas Co. No. 3 J. S. Lea, SW NE SW sec. 14-20-34. Loc.

Texas Co. No. 1-N State, C SW SW sec. 30-17-35. C.O. to 4,747 ft.; P.B. 4,700 ft.; W.O.C.

Texas Co. No. 2-D State, C SW NW sec. 27-17-34. Drlg. wtr. well.

Texas Co. No. 1-P State, C NW SE sec. 7-18-35. Drlg. 4,092 ft.

Texas Co. No. 1-Q State, C SE SE sec. 25-17-34. C.&P.

Texas Co. No. 2-Q State, C SW SE sec. 25-17-34. Drlg. 1,355 ft.

Texas Pacific C. & O. Co. No. 12-A State, C NE SE sec. 7-22-36. T.D. 3,527 ft.; cmtg.

Twin Drlg. Co. No. 1 Corrigan, C SW NE sec. 4-22-37. R.U.R.

Here's A Pump—

that may save you many dollars for lifting costs.

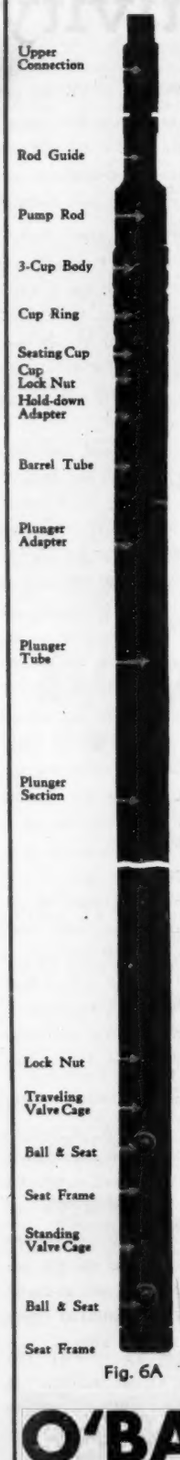

Fig. 6A

Yes, that is exactly what we mean. Study the construction of this O'Bannon Stationary Barrel Arrow Rod Pump, as indicated in the cut-away drawing. Then take the time to ask production superintendents what they think of it—designed and manufactured particularly to handle low fluid level wells.

At its upper end, the sucker rods connect to a solid pump rod which extends down through an assembly consisting of a guide and a hold-down into the barrel and engages the top of the plunger. A blind traveling valve is fitted to the lower end of the plunger and carries a streamlined valve frame designed to direct the fluid into the valve with the least frictional resistance. Valves work close together, lessening the likelihood of gas lock.

We Recommend The CRO-LAY Barrel

The pump barrel is made from the finest selected steel working barrel tubing, carefully cold-drawn to size, and with an exceptionally fine finish on the inside wearing surface. In addition, these pumps can be furnished with the same excellent barrel tube lined with pure chromium by the exclusive O'Bannon Cro-Lay process. Cro-Lay imparts a very hard, smooth, and non-corrosive surface and increases the life of both barrel tube and plunger many times, thus lowering lifting costs.

If you do not have the new bulletin just published on this pump, drop us a card, and we will send it to you.

Sold by Supply Stores

Manufactured in Tulsa by the

Walter O'Bannon Co.

O'BANNON ARROW PUMPS

Twin Drlg. Co. No. 1 State, C SE NW sec. 32-21-37. Drlg. 2,118 ft.
Two States Oil Co. No. 2 Cole, O.W.D.D., C NE NE sec. 16-22-37. O.T.D. 1,141 ft.; T.D. 1,700 ft.; S.D.R.
Two States Oil Co. No. 4 Cole, C NW NW sec. 16-22-37. Drlg. 2,526 ft.
Weier Drlg. Co. et al No. 1 Woolworth, NE NE SW sec. 28-24-17. Drlg. 1,340 ft.
Sam Weiner No. 1 Smith, NE cor. sec. 4-25-37. T.D. 3,060 ft.; setting 7-in. csg.
Weiner No. 1 Parcell, C SW NE sec. 8-23-28. Drlg. 3,035 ft.
Western Gas Co. No. 1 Curry, C SE SE sec. 1-24-36. T.D. 3,697 ft.; F. 4 B.F.P.H., 50% wtr.; S.D.O.
Western Gas Co. No. 1 Matkins, C SE SE sec. 15-23-36. T.D. 3,665 ft.; P.B. 3,658 ft.; cmtg.

Eddy County

F. E. Baker No. 1 Eddy, NE sec. 12-22-37. Drlg. 2,225 ft.
Danciger O. & R. Co. No. 4-A Turner, C SW SW sec. 18-17-31. T.D. 3,517 ft.; F. 200 B.O. in 24 hrs.; rng. tbg.
Danciger O. & R. Co. No. 1-B Turner, CEL NE SE sec. 17-17-31. Loc.
D. & B. Oil Co. No. 3 Jenkins, NE NE NW sec. 20-17-30. T.D. 2,975 ft.; straightening hole.
English & Harmon No. 1 Dougherty, NE NE SW sec. 8-17-27. T.D. 955 ft.; reaming.
Etz Bros. No. 5 State, SE NE SE sec. 16-17-30. Loc.
Finley & Cherry No. 1 Buchley, C NW NW sec. 28-16-31. Wildcat; T.D. 3,750 ft.; S.D.
Flint Prod. Co. No. 1-B State, SE sec. 20-17-30. Drlg. 3,830 ft.
C. J. Frederick No. 1 Reed, C NE SW sec. 28-24-28. T.D. 2,770 ft.; S.D.O.
F. W. & Y. Oil Co. No. 8-A Gissler, NE NW NE sec. 23-17-30. Drlg. 3,319 ft.
F. W. & Y. Co. No. 9-A Gissler, C SE NE sec. 14-17-30. T.D. 3,500 ft.; treated and swb. 40 B.O.P.D.; S.D.O.
F. W. & Y. Oil Co. No. 3 Jackson, C NW SE sec. 13-17-30. T.D. 2,953 ft.; fsg.
Grayburg Oil Co. No. 4 Keely, SE SW NE sec. 24-17-9. T.D. 3,588 ft.; to test.
Grayburg Oil Co. No. 12 Burch, NW NW SE sec. 19-17-30. R.U. and S.D.
H. A. Hartwell No. 1 Vandagrift, NE NE SE sec. 8-18-27. T.D. 2,085 ft.; to acdz.
R. L. Holcomb No. 1 State, NW sec. 22-17-28. T.D. 1,980 ft.; S.D.O.
C. F. Ingram No. 1 Page, NE NE SW sec. 15-21-28. T.D. 1,632 ft.; S.D.R.
F. G. Keyes No. 2 State, C SE NE sec. 9-17-28. Mch.
Paul Moran No. 1 Crawford & Smith, NW NW SW sec. 24-24-36. T.D. 2,005 ft.; S.D.O.
Paton Bros. No. 2 Ginsberg, C SE SE sec. 8-18-31. T.D. 3,159 ft.; 1,000 ft. O.I.H. in 4 hrs.; S.D.; csg.
Premier Pet. Co. No. 1-B Maddren, NW SW SW sec. 27-17-30. Drlg. 1,615 ft.
Repollo Oil Co. No. 3-A Keel, SW SE SW sec. 7-17-31. T.D. 3,140 ft.; S.O.&G.; W.O.C.
Repollo Oil Co. No. 3-C McIntyre, NW SE NE sec. 20-17-30. Drlg. 1,600 ft.
Repollo Oil Co. No. 3-A Parke, NW cor. sec. 22-17-30. Drlg. 3,070 ft.; S.O.
Repollo Oil Co. No. 4-A Parke, NW SE NW sec. 22-17-30. Drlg. 2,220 ft.
Rudco O. & G. No. 5 Yates, C NE NE sec. 33-18-28. Loc.
Paul Sarget No. 1 State, NE sec. 16-17-31. T.D. 3,749 ft.; P.B. 3,745 ft.; tstg.
W. A. Snyder No. 1 Pecos Irrigation, C NE SE sec. 15-25-28. T.D. 3,330 ft.; S.D.O.
Neil H. Wills et al No. 3-A State, NE SE SW sec. 20-20-30. T.D. 1,531 ft.; F. 37 B.O. in 3 hrs.; 500,000 ft. gas.
Western Drlg. Co. No. 1-A Western, SE SW NW sec. 23-17-29. T.D. 2,990 ft.; F. 30 B.O.P.D.; tstg.

Chaves County

E. J. Fisher No. 1 Etz Permit, NE sec. 23-7s-26. Drlg. 1,700 ft
Grastorf & Caudill No. 1 Smith, C NE NE sec. 1-4s-29. Wildcat; new hole; drlg. 2,475 ft.
Interstate Minerals, Inc., No. 1 Dunigan, NW cor. sec. 15-15-30. Drlg. 75 ft.
J. & L. Drlg. Co. No. 2 Hurd, SW sec. 11-11-28. T.D. 1,000 ft.; S.D.O.

De Baca County

Land Owners Oil Co. No 1 McAdoo, SW cor. sec. 16-1s-7e. O.W.; prep. to deepen from 5,850 ft.; S.D.
James D. Ward No. 1 Summers, NW NE SW sec. 17-4n-20. T.D. 260 ft.; S.D.
N. F. Woods No. 1 Jones, C NE SW sec. 17-4n-20. T.D. 25 ft.; S.D.

Dona Ana County

Jules C. Bertrand No. 1 Casad Permit, sec. 24-26-5e. T.D. 47 ft.; S.D.O.

McKinley County

S. Dysart No. 1 Govt., NE sec. 14-14-10w. T.D. 1,390 ft.; fsg.

Otero County

Fred Turner, Jr., No. 1 Ella Everett, C SE SE sec. 34-22-13. Drlg. 3,030 ft.
Fred Turner, Jr., No. 1 H. V. Everett, SE SE sec. 28-22-13. Drlg. 1,700 ft.

Roosevelt County

C. S. Peterson and Conquistadores Oil Co. No. 1 Good, NW SE SE sec. 28-5s-30. T.D. 720 ft.; R.U.S.T.

NORTHWEST NEW MEXICO

Bernalillo County

Norins Realty Co., Inc., No. 2 North Albuquerque, NE SE NW sec. 19-11n-4e. T.D. 3,750 ft.; M.I. 6⅝-in. and 3-in. D.P.; to resume.

San Juan County

The Continental Oil Co. No. 75 Rattlesnake, E quarter cor. section 2-29n-19w, Rattlesnake pool, was completed at 941 feet in the Lower Dakota for 70 bbls. per day.

Continental Oil Co. No. 76 Rattlesnake, SW NE SE sec. 2-29n-19w. R.U.; (first report).
Al Greer No. 2 fee, SW SE SW sec. 10-30n-11w. Drlg. 475 ft.
Frank Lischke No. 1 Abreo, SW SW sec. 27-30n-11w. Drlg. below 520 ft.
Anna Oil Corp. No. 6 Govt., SW NE NE sec. 33-30n-11w. Drlg. 1,900 ft.

Socorro County

Central New Mexico Oil Co. No. 1 Belen Gr., SE NW sec. 16-3n-1e. Drlg. 3,000 ft.

Torrance County

Chief O. & G. Co. No. 1 Pace, SE sec. 12-6n-7e. T.D. 2,020 ft.; U.R. to set pipe at 2,014 ft.

Valencia County

Old Spanish Grants, Inc., No. 1 San Clemente, C SE SW sec. 23-7n-1e. R.U.R.
C. A. Grober et al No. 1 Fuqua, NE NE sec. 19-5n-3e. T.D. 900 ft.; R.U.R.

COLORADO

Archuleta County

Reports that an important show of oil had been encountered in the Pagosa Oil & Development Co. No. 1 Macht, in the Pagosa area, failed to be sustained upon investigation. Several scouts visiting the well say that at 1,135 feet it had a show of oil in blue Mancos shale through 500 feet of water. The water, which rose 500 feet over night, is believed to have been surface

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water coming from behind the 12½-inch at 328 feet. The hole has been dried up with 1,100 feet of 8¼-inch. The statement that there are no surface evidences of structure, is almost unanimous.

Boone Dev. Co. No. 1 Newton, SE NW SE sec. 18-33n-1e. Spd. June 2.

Pagosa Oil & Dev. Co. No. 1 Macht, S sec. 32-36n-1w. T.D. 1,135 ft.; ran 1,100 ft. 8¼-in. for W.S.O.

Cheyenne County

The Gulf Oil Corp. No. 1 Union Pacific-Larson, C SE NW section 13-13s-49w, Mount Pearl district, is being plugged and abandoned at 6,360 feet in schist. It had the top of the Reagan sand at 6,292 feet. The top of the Cherokee was at 5,265 feet, the Mississippian at 5,716 feet, and the Arbuckle at 5,940 feet. Elevation 4,518 feet. This was the third well drilled in eastern Colorado by the Gulf company under its agreement with the Union Pacific Railroad. No announcement has been made in regard to future plans.

Fremont County

Stanley Thomas No. 1 Rickwalt, SE SE sec. 2-19s-70w. Drlg. 150 ft.

Garfield County

Roaring Fork Oil Co. No. 1 Patterson, C NE sec. 36-7s-88w. T.D. 775 ft.; recmtd. 8¼-in. at 721 ft.

Grand County

Interstate O. & R. Co. No. 1 Hinman, NE SE NW sec. 11-2n-81w. S.D. 3,920 ft.; will D.D. to Morrison.

Huerfano County

S. W. Pressey No. 1 Tomkins, NE NE NE sec. 10-29s-69w. M.I.M.

S. W. Pressey No. 2 Alamo, C SW SE sec. 3-27s-68w. Rng. 8¼-in. at 1,200 ft.

LaPlata County

N. Spatter No. 1-X Bryce, SE SW SW sec. 31-33n-9w. Drlg. below 100 ft.

Mesa County

Continental Oil Co. et al No. 1 Miller, SW SW NW sec. 36-8s-91w. Drlg. 2,444 ft.

Moffat County

William A. Myers has made a location for a test on the Willow Creek dome, on the west end of the Skull Creek anticline in his No. 1 State, SW SE NE section 36-4n-103w. The structure was mapped by E. S. Shaw, formerly with the Midwest Refining Co. He gives it approximately 300 feet of surface closure with 4,000 acres inside the closing contour. The oldest rock exposed at the surface is the basal Sundance sand. The top of the Shinarump, Triassic age, is estimated at 500 feet; the marine Pennsylvanian at 950 feet and the Mississippian at 1,600 feet.

C. R. Privett No. 1 Sutton, NE NE SW sec. 1-5n-96w. T.D. 300 ft.; drld. 30 ft. of shells at 260-90 ft.; will run 300 ft. of 12½-in. for cave string.

Montezuma County

McElmo Oil Co. No. 1 West, NE NW NW sec. 31-36n-17w. Drlg. 4,175 ft.

Morgan County

It is reported that a block of approximately 5,000 acres placed on record last December in Township 5n, Ranges 57 and 58w, north of the town of Fort Morgan, by Burkett & Gillespie, of Wichita, Kans., is held for the account of the Amerada Petroleum Corp. This is the district in which the Fort Morgan Oil Co., of which George Gilmore is president, had a block of 19,000 acres several years ago following the Greasewood discovery. This company still is intact and has some acreage it is holding on to, but most of it went back to the owners. The area was mapped at the time by Dr. R. D. George, of the geological department of the state university. The Amerada company took a block several months ago just east of the Wellington field in Larimer County.

Park County

South Park Oil Co. No. 1 Lemar, NE NE SE sec. 34-11s-75w. T.D. 5,735 ft.; C.O. 7 ft. off bttm.

Prowers County

Continental Oil Co. No. 1 Ruby, C NE NW sec. 31-21s-44w. Drlg. 1,760 ft.; tops: Dakota, 380 ft.; Morrison, 760 ft.; red beds, 1,280 ft.; cmtd. 15-in. at 1,200 ft.

Pueblo County

Eden O. & G. Co. No. 1 Horse Creek, SW SE sec. 29-19s-64w. R.U.

C. E. Puckett No. 1 Barber, NW sec. 35-21s-66w. Trying for W.S.O. at 280 ft.

Routt County

Craig & Moore No. 1 Erwin, C SW NE sec. 33-7s-85w. Drlg. 875 ft.

Rio Blanco County

Buford Oil Co. No. 1 Govt., C SW SW sec. 16-1n-91w. Drlg. below 2,135 ft.

Weld County

An unconfirmed report is to the effect that W. R. Ramsey is preparing to become active again in eastern Colorado and may drill a well in the New Raymer district. His representatives were in Colorado re-

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cently. In 1932 he drilled No. 1 Tighe, in the SW NE SE section 15-7n-59w. Final report gave total depth 6,790 feet. It made 40 bbls. of oil the first 24 hours from the Dakota sand at 6,760-65 feet and 20 bbls. in the second 24 hours. It then was drilled deeper and it made 20 bbls. of water per hour at 6,768-74 feet. It was then plugged back to the Muddy at 6,680-6,700 feet and completed for 6,000,000 feet of gas with 1,800 pounds pressure. The next year he went nearly a mile to the southwest and drilled No. 1 Scriven, found water in the Dakota and plugged it at 6,894 feet. It ran 20 feet lower than the discovery well. Leases on the west side were then surrendered and he retained several thousand acres on the east side with the intentions of drilling another test. The unverified report is that he will drill on section 13, a little more than a mile to the east of the gas well.

WYOMING

Albany County

Murphy Oil Co. No. 12 Holst, SE NW NE sec. 13-17n-77w. Drlg. gr. sh. 2,345 ft.
Murphy Oil Co. No. 13 Holst, SE SW NE sec. 13-17n-77w. Loc.

Big Horn County

Prescott & Mileski No. 1 Govt., NE NW SW sec. 15-1n-93w. Drlg. 536 ft.
Clifford S. Johnson No. 1 Johnson, CEL NW NW sec. 24-51n-93w. Rig; W.O. engine.
Joan Oil Co. No. 1 Howell, NE NW NE sec. 32-55n-97w. S.D. 3,385 ft.

Carbon County

Cunningham Oil Co., Inc., No. 1 Union Pacific-Cronberg, SE NE SE sec. 3-23n-79w. Drlg. r.b. 2,989 ft.
Producers Oil Co. No. 1 Lake Valley, 200 ft. S of CNL sec. 14-20n-88w. Res. drlg. 1,755 ft.; 12½-in. at 1,588 ft.
Ohio Oil Co. No. 3 Hazlett Est., NE SW SE sec. 34-23n-79w. Drlg. r.b. 3,014 ft.
Ohio Oil Co.-California Co. No. 3 State-Griffin, C SW NW sec. 36-21n-79w. Drlg. 4,475 ft.

Converse County

The Wyshawn Oil Co. No. 1 Lindley, in the Shawnee district, which attracted attention last week when the drill revealed some interesting subsurface conditions, is bottomed at 1,150 feet and underreaming the 10-inch to set at that depth to shut off water in what is now identified as the Sundance sand. It went out of the White River formation at 960 feet, went through 50 feet of shale and then topped the Sundance at 1,010 feet. After passing through 140 feet of sand, it went back into shale. It may not have drilled the entire Sundance section.

The New Erea Fuel Co. No. 2 Boot Cattle Co., C SE SE section 1-31n-70w, was completed in sand at 270-308 feet for 1,500,000 feet of gas. It is 25 feet east of No. 1 Lindley which had gas in this sand, but went on down to 540 feet where it encountered water and was abandoned.

E. B. Jones No. 1 O'Meara-Government, NE NE SE section 17-32n-69w, which was drilled for structural data, was abandoned at 860 feet. It had a show of oil at 486 feet.

D. O. Gray No. 1 William Lane, SW SE SE section 22-32n-69w, was abandoned at 597 feet, where it had a hole full of water.

Wyshawn Oil Co. No. 2 Lindley, C SW SW sec. 35-32n-69w. Spdg.; (cor. loc.).
Sand Creek Oil Co. No. 1 Probesh, NW SW SE sec. 29-32n-69w. T.D. 565 ft.; lowering 8¼-in. for W.S.O.
Fred Bunker No. 1 Pestal, SE NE NE sec. 32-32n-69w. Drlg. 200 ft.; 10-in. at 170 ft.
New Era Fuel Co. No. 2 Mary Gasper, CNL NW SW sec. 25-32n-69w. Spdg.; (cor. loc.).
Wyshawn Oil Co. No. 1 Lindley, NW SE SE sec. 34-32n-69w. T.D. 1,150 ft.; U.R. 10-in.

Fremont County

Consolidated Oil Properties No. 3 Ewart, C SW SE sec. 16-1n-1w. Cmtd. 8¼-in. at 820 ft. for W.S.O; W.O.C.
Sinclair-Wyoming Oil Co. No. 2-B Muskrat, NW NW NE sec. 4-33-92w. T.D. 5,320 ft.; cmtd. 5⅜-in. at 5,319 ft.; good S.G. in Lakota.
Stanolind O. & G. Co. No. 1 Govt., C SE SE sec. 3-33n-96w. T.D. 8,920 ft.; cmtd. 7-in. lnr. at 7,387-8,915 ft. with 205 sacks; perf. lnr. at 8,230-85 ft.; tstg.; gauged 4,500,000 ft. of gas.
Ben Stewart No. 1 Darnell, NE SE sec. 26-3n-1w. S.D. 2,245 ft. for 7-in.

Hot Springs County

California Expln. Co. No. 1 Govt., NE SE NE sec. 12-44n-97w. Drlg. 4,070 ft.

Lincoln County

H. C. Harris et al No. 1 Govt., SE NW NW sec. 23-21n-117w. T.D. 450 ft.; cmtd. csg. 442 ft.; W.O.C.

Natrona County

General Petroleum Corp. No. 1 Government, the Cole Creek discovery well, is still testing the Lakota at 8,019 feet, but has been unable to make it flow through the tubing. The oil level stands about 600 feet from the top of the hole. Swabbing through the tubing is at the rate of 35 to 40 bbls. an hour. It will put on a bottom-hole choke in an effort to make it flow. An analysis of samples made at the U. S. Geological Survey laboratory at Midwest showed a gravity of 32.7 on the A.P.I. scale and less than one-tenth of 1 per cent sulfur. Gasoline and naphtha content was 21.4 per cent; kerosene, 15.6 per cent; gas oil, 10.1 per cent; nonviscous lubricating distillate, 12.3 per cent; medium lubricating distillate, 3.8 per cent; residuum, 34.7 per cent; loss, 2.1 per cent.

Stanolind O. & G. Co. No. 26 T.P.-Wyo. Asso., C SE SW sec. 26-40n-79w. C.&P.
Western Producers, Inc., No. 1 Govt., NW SW SE sec. 5-39n-78w. S.D. 1,165 ft.
Stanolind O. & G. Co. No. 8 T.P.-Midwest Oil, C NW SW sec. 35-40n-79w. Loc.; W.O. compl. No. 26.
Stanolind O. & G. Co. No. 26 T.P.-Wyo. Asso., C SE NW sec. 35-40n-79w. T.D. 4,002 ft.; cmtd. 6⅝-in. at 3,996 ft.; tstg.
General Pet. Corp. No. 1 Govt., C NW SE sec. 21-35n-77w. T.D. 8,019 ft.; cmtd. 6⅝-in. at 7,978 ft.; tstg.

Niobrara County

A. B. Cobb No. 3 Novick-Ong, SW SE SW sec. 6-35n-65w, on the west side of Lance Creek and outside the unitized area, was completed at 5,349 feet for 1,640 bbls. in 24 hours through the open tubing from the Leo sand at 5,313-49 feet. It is a north offset to C. L. Price No. 1 Lamb. Top of the basal Sundance was at 4,090 feet. Elevation 4,450 feet.

Hewitt Brothers & Manning No. 1 Pecklow, which plugged back from dry Converse sand at 5,162 feet to test a show of oil in the Minnekahta, found water in that horizon after bailing down mud and is drilling ahead to the Leo sand.

C. L. Price No. 2 Lamb, C SE SW sec. 12-35n-65w. Spdg. 60 ft.
MacKinnie Oil & Drlg. Co. No. 3 Thompson, NW NE NW sec. 7-35n-65w. T.D. 5,317 ft.; top Leo sd. 5,313 ft.; cmtd. 7-in. at 5,310 ft.; W.O.C.
Minnelusa Oil Co. No. 2 H. & M., NW NE NE sec. 8-35n-65w. Drlg. 3,650 ft.
Hewitt Bros. and Manning No. 1 Pecklow, SE SE SE sec. 1-35n-66w. Drlg. 5,260 ft.
H. D. Moore et al No. 1 Beregren, NW sec. 23-35n-63w. Drlg. in Sundance 937 ft.; top Morrison 587 ft.
Continental Oil Co. No. 4 Apex-2, NW NE SE sec. 34-36n-65w. Drlg. 1,375 ft.; 13⅜-in. at 370 ft.

Park County

Resolute Oil Co. No. 2 State, C SW SW sec. 16-57n-101w. Drlg. 2,000 ft.
Paul Stock No. 1 Govt., SE SE NE sec. 20-53n-101w. Drlg. 3,000 ft.

Sublet County

Texas Co. No. 3-H, NE NW NW sec. 27-27n-113w. R.U.; (first report).
Yellowstone Oil Co. No. 1 Henry Budd, C SE SE sec. 6-30n-112w. Drlg. 100 ft.

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Wyo. Pet. Corp. No. 1 Chas. Budd, C NE NE sec. 10-29n-113w. Drlg. congl. 162 ft.

Sweetwater County

Sinclair-Wyoming Co. No. 78, SW SW NW sec. 11-26n-90w. T.D. 4,090 ft.; cmtd. 6⅝-in. 4,063 ft. with 150 sacks; top Tensleep 4,073 ft.; tstg.
Selegna Oil Co. No. 1 Union Pacific, SW SW sec. 11-20n-104w. Drlg. Sundance 4,810 ft.
Sinclair-Wyoming Oil Co. No. 33-A, SE SW SW sec. 11-26n-90w. T.D. 1,760 ft.; R.U. to deepen from Lakota to Sundance.

Washakie County

Wyoming O. & R. Co. No. 10-B Brome, C SE NE sec. 6-47n-90w. Drlg. below 1,500 ft.

Weston County

Howland & Seneker, NE NW SW sec. 13-46n-64w. Drlg. 250 ft.
West Osage Oil Co. No. 3, SW SE NE sec. 15-46n-64w. Spdg.
Updike Bros. No. 6, CSL NE SW sec. 25-46n-64w. Spdg.
John Brorphy No. 1 George, SW SE NW sec. 26-48n-64w. T.D. 2,080 ft.; fsg.

MONTANA

Montana gasoline sales in April amounted to 13,034,330 gallons, which compares with 10,313,420 gallons in March. Of this total sales in April 9,711,023 gallons were made in the state and 3,323,307 gallons were imported. Montana refiners exported 2,761,301 gallons, leaving net sales in the state 6,949,722 gallons. Exports of imported gasoline amounted to 4,511 gallons. Net sales in Montana amounted to 10,268,518 gallons, of which 69.9 per cent was refined in the state.

Carbon County

R. C. Tarrant No. 1, 500 ft. W of C sec. 3-6s-18e. T.D. 1,860 ft.; W.O. 10-in.
R. C. Tarrant No. 2 Heare, NW SE NW sec. 14-6s-19e. S.D. 1,780 ft.; chg. to rot.
Sha-Wa Pet. Co. No. 1 Govt., SW NW NE sec. 35-9s-23e. Drld. cmt. plug to 3,055 ft. and hole began filling with wtr.; pulling 8⅝-in.
Miracle Oil Co. No. 2 Govt., CWL NE SE sec. 3-6s-23e. Drlg. 2,391 ft.

Dawson County

Frank C. Hughes has let contract to the Norbeck Drilling Co. for No. 1 fee, NW NE SE section 5-14n-55e, in the old Gas City pool area. This is at the extreme north end of the Cedar Creek (Baker-Glendive) anticline and not far from the first gas discovery in Montana. The City Gas pool was discovered in 1915 and attained its peak in 1917. Afterwards salt water showed in the wells and the field was abandoned.

Frank C. Hughes No. 1 fee, NW NE SE sec. 5-14n-55w. Loc. for 2,000-ft. tst.; (first report).

Fallon County

Montana-Dakota Utilities Co. No. 1, SW NE NE sec. 5-6n-60e. T.D. 105 ft.; cmtd. 10¾-in. at 102 ft.; W.O.C.

Fergus County

Baughman & Singley No. 1 Skaggs, C NW SW sec. 7-15n-20e. Drlg. 650 ft.

Glacier County

Glacier Prod. Co. No. 3 Bonnet, CSL NW SW sec. 4-32n-5w. M.I.M.; (first report).
Texas Co. No. 9, Unit 6, C NW NW sec. 9-32n-5w. R.U.
Glacier Prod. Co. No. 4 Coburn, NW SE SW sec. 5-33n-5w. Spdg.
A. B. Cobb No. 1 Reagan-Jackson, SW SE NW sec. 5-32n-5w. Drlg. 965 ft.; Colo. 415 ft.; 10¾-in. 450 ft.
Nadeau Bros. No. 5 Farmers State Bank, CEL SE NE sec. 17-33n-5w. T.D. 2,820 ft.; fsg.

Stillwater County

Indian Terr. Ill. Oil Co. No. 2 Hepp, NW NW NW sec. 25-1n-21e. R.U.R. to deepen from 3,832 ft.

Toole County

There were three completions and one new operation in Kevin-Sunburst.

A. E. Crumley No. 12 Fryberger, C NW SE section 24-35n-3w, west of the Gunderson pool, is pumping 110 bbls. of oil and 40 bbls. of water per day from breaks in the lime at 1,567-72 feet and 1,593-1,600 feet, after acidizing with 1,000 gallons. It had no shows in the top of the contact.

A. Beardslee No. 8 Swears, SE NW NW section 9-35n-2w, is pumping 40 bbls. of oil and 160 bbls. of water at 1,662 feet after acidizing with 1,000 gallons.

R. G. Parrant No. 1 Anderson, C SW SE section 26-35n-4w, on the west side, is pumping 8 bbls. of oil and 30 bbls. of water per day after acidizing with 500 gallons at 2,042 feet, total depth. It had previously been acidized with 1,500 gallons.

G. H. Lund No. 1 Dahlen, C SE NW sec. 35-35n-4w. Spdg.; (first report).
Montana Gas Corp. No. 2 Clark, C SE SW sec. 24-37n-1w. Drlg. 2,380 ft.; dry Ellis sd. at 2,320-25 ft.; wtr. at 2,330-40 ft.; and 2,340-50 ft.; S.O. in L. 2,350-80 ft.
Casper T. Olen No. 8 Engermoen, SW NE SW sec. 11-35n-2w. Drlg. 260 ft.
Agen Oil Co. No. 1 Goeddertz, SE SW SW sec. 23-35n-3w. Drlg. 900 ft.
V. F. Dahl No. 1 Kimball, SW SE SE sec. 1-35n-3w. Drlg. 750 ft.
Big West Oil Co. No. 8 Gunderson, CNL NE NW sec. 19-35n-2w. T.D. 1,595 ft.; contact 1,590 ft.; good S.O.; will acd.
Kluth & Burke No. 1 George, SE SW SE sec. 8-34n-2w. Drlg. 1,350 ft.
O. A. Nepstad No. 2 Haugen, NW NW NE sec. 11-35n-3w. T.D. 1,600 ft.; fsg.
Hamilton & Hamilton No. 4 Reeg, SE SW SE sec. 14-35n-2w. Drlg. 1,443 ft.; contact 1,435 ft.; S.O.
Fifty-Six Pet. Co. No. 1 Keywood, C NW SW sec. 13-34n-4w. T.D. 1,900 ft.; 1 B.W.P.D.; S.D.
Pfabe & Engleking No. 2 Hurley, NE NE NW sec. 8-34n-2w. Loc.
H. C. Morton No. 8 Morton, C SW NW sec. 24-34-2w. S.D. 590 ft.
Chas. Grant et al No. 1 Anderson, SE NE NE sec. 26-35n-4w. S.D. 2,109 ft.
West Kevin Community Lease, Inc., No. 1 McClary, SW NE NW sec. 3-34n-4w. T.D. 2,160 ft.; acd. 500 gals.; tstg.
Plotke & Rader No. 1 Ward, NW SE SE sec. 29-35n-3w. Drlg. 1,740 ft.

Yellowstone County

Broadview Dome Oil Co. No. 1 Stallinberger, NE NE SW sec. 18-3n-23e. S.D. 4,565 ft.; prep. to res.
Riverton Oil Co. No. 1 Fox, CEL NW NE sec. 14-2n-23e. T.D. 1,795 ft.; cmtd. 8¼-in. on bttm.; R.U.S.T.

UTAH

Daggett County

Mountain Fuel Supply Co. No. 3-B Murphy, NW NW SW sec. 23-3n-24e. Drlg. 5,614 ft.

Grand County

Utah Southern Oil Co. No. 1 Hyde, SE NW NW sec. 33-22s-22e. T.D. 6,715 ft.
Columbia Crude Corp. No. 1 Rath, NW SW SE sec. 12-25s-20e. T.D. 3,992 ft.; fsg.
Cane Creek Oil Co. No. 1 Govt., NW SW sec. 31-26n-21e. T.D. 1,600 ft.; U.R. 10-in.

Summit County

Longwell Pet. Co. No. 1, SE SW SE sec. 35-3n-5e. Drlg. 2,792 ft.; S.S.G.

NEBRASKA

Keith County

Twentieth Century Oil Co. No. 1 Stuken, C NW NW sec. 21-14n-37w. Drlg. sh. 1,200 ft.

Sioux County

Union Oil Co. of Calif. No. 1 Agate-15, NW SE SE sec. 15-28n-55w. No report; requested quotations on 5,700-ft. csg.

NORTH DAKOTA

Williams County

California Co. No. 1 Kamp, C NW NE sec. 3-154n-96w. Drlg. 8,108 ft.

Canadian Fields

Completions and Operations in Northwest and in Ontario

By VICTOR LAURISTON

CHATHAM, Ontario, June 4. — Sundance Royalties No. 1, LSD 9, section 17-18-2w5, in the southern part of the Turner west flank, has started off with a flush production around 4,000 bbls. a day, with about 5,000,000 feet of gas in a three-day temporary potential test. It looks like a large producer. The well, sponsored by Anglo-Canadian Oil Co. and drilled on acreage of Calgary & Edmonton Corp., finished in the black lime at 7,410 feet, some 468 feet in the Madison. A new procedure was employed in completing the well, the hole being reamed out from 6 to 8 inches. Tubing was run and the well acidized, the hole being cleared by gas-lift from Firestone Petroleums No. 1.

In the south end of the proven field National Petroleum Corp. No. 2, LSD 14, section 9-18-2w5, was deepened to 7,695 feet, 625 feet in the limestone, when analysis of samples showed the main porous horizon and the underlying black lime had not been reached at 7,559 feet. The hole was acidized in the bottom 70 feet and cleared by gas-lift. It made around 200 bbls. a day, chiefly from the upper porous horizon, which also will be acidized.

In section 21-18-2w5, Barsac Royalties No. 1, LSD 12, finished at 6,866 feet after getting the Madison at 6,406 feet. Tubing has been run and the well is testing for temporary potential, with indications of a good producer. Calmont Oils holds a 12 per cent royalty and royalty interests are held also by British American Oil Co., Security Assets, Newell & Chandler, and C. W. Ross.

In section 29-18-2w5, Model-Reward-Spooner No. 1, S half LSD 1, finished at 7,185 feet after getting the Madison at 6,734 feet. It has been acidized and is testing production. It made between 225 and 300 bbls. a day before acidizing.

In the same section Davies Petroleums No. 1, LSD 2, finished 477 feet in the lime at 7,375 feet, made around 900 bbls. a day on government test. Gas flow has increased to 2,500,000 feet a day. Tubing could not be carried lower than 120 feet off bottom, and it is believed the lime has caved. Cable tools will be rigged to clean out the hole. Production will be taken while redrilling.

Tests in the Lime

In West Central Turner Valley, Vulcan-Brown Petroleums No. 1, LSD 10, section 5-19-2w5, is deepening in the lime below 7,064 feet. It got the Madison at 6,988 feet and cemented 10 feet in.

In section 32-18-2w5, Royalite Oil Co. No. 30, LSD 11, is below 7,690 feet after getting the Madison at 7,220 feet and cementing at 7,235.

In section 29-18-2w5, Globe Royalties No. 1, LSD 7, is deepening below 7,075 feet after getting the lime at 6,955 feet and cementing at 6,977.

In section 20-18-2w5, United Brown Petroleums No. 5, LSD 1, got the lime at 6,839 feet and cemented at 6,851. It is deepening below 7,091 feet.

In section 16-18-2w5, Frontier Royalties No. 1, LSD 11, is deepening below 6,678 feet after getting the lime at 6,489 feet and cementing at 6,505 feet.

West Side Drilling

In section 5-19-2w5, West Central Turner Valley, Mercury Royalties No. 1, LSD 8, is in the Kootenay formation below 5,685 feet and getting close to the Madison. It is logging high in comparison with most of the west flank crude producers. Royalite Oil Co. No. 33, LSD 2, same section, is below 2,489 feet.

In section 6-19-2w5, East Crest Oil Co. No. 4, LSD 8, is below 2,300 feet.

In section 32-18-2w5, Vantage Oils No. 1, S half LSD 12, has derrick finished and is rigging. Davies Petroleums No. 4, LSD 10, is below 1,100 feet. West Turner Petroleums No. 2, LSD 7, is below 5,820 feet after getting the grit beds marker at 5,220 feet. West Turner No. 3, LSD 6, is below 2,400 feet. British Colonial Oils No. 1, LSD 5, is preparing to resume after running 13-inch casing to around 1,500 feet.

In section 29-18-2w5, Commoil No. 2, LSD 10, is in the Benton formation below 4,000 feet. Command Oils No. 1, LSD 14, is waiting for equipment, to resume from 810 feet. Drilling contract has been let and derrick already on location will be used. P. & H. Development Co. No. 1 Alco, LSD 13, is resuming after cementing surface pipe. Royalite Oil Co. No. 31, LSD 6, is below 5,740 feet.

In section 20-18-2w5, Consolidated Royalties No. 1, LSD 14, is below 5,407 feet. Producers Crude Corp. No. 1, LSD 11, is deepening from 3,005 feet after cementing 10-inch casing at 2,700 feet. Sunset Oils No. 2, LSD 7, is below 4,720 feet. York Oils No. 1, LSD 2, is below 5,180 feet.

In section 16-18-2w5, Brown Oil Corp. No. 5, LSD 12, is below 1,627 feet. Richwell Oil Co. No. 1, LSD 5, is resuming after cleaning out and running 10-inch casing to bottom at 1,892 feet. Royal Canadian Oil Co. No. 2, LSD 4, is below 2,780 feet, carrying 10-inch casing. Okalta Oil Co. No. 7, LSD 3, is below 3,000 feet and carrying 10-inch casing.

In section 9-18-2w5, Marine Petroleums No. 1, LSD 11, is deepening below 905 feet after straightening hole.

In section 5-18-2w5, Theo Grewer and associates No. 1, LSD 14, technically spudded some time ago, will be completed with the backing of Vancouver interests, cable tools being used for the first 4,000 feet. Work will be resumed this month. P. & H. Development Co. No. 1 C. & E., LSD 7, is below 150 feet with surface casing cemented. M. & M. Exploration Co. No. 1, LSD 6, is working on cellar.

In section 33-17-2w5, Davies Petroleums No. 3, LSD 7, is cleaning hole to 3,250 feet and cementing 10-inch casing. When completed, rotary equipment will be installed to carry the test to the lime, expected around 7,400 feet.

In section 16-17-2w5, Firth Petroleums No. 1, LSD 6, has 24-inch hole standing at 306 feet, waiting for 21½-inch casing.

Eastern Field Report

By STAFF CORRESPONDENT

Deep Tests, Failing to Find Oil in Oriskany, Drill Deeper

PITTSBURGH, Pa., June 6.—Two outside deep tests in West Virginia failed to find production in the Oriskany sand, but are still drilling. In Jackson County New Penn Development Co. (Potter Development Co.) topped the Corniferous lime at 4,737 feet in the test on the William T. Chancey farm in Ripley district and the Oriskany sand at 4,840 feet. After drilling 21 feet in the sand there was no showing of gas or oil. The hole will be deepened until the Helderberg is struck. This test, about 1½ miles southeast of Ripley, has a surface elevation of 633 feet.

In Wood County this company reached the Corniferous lime at 4,218 feet in the test on the W. H. Orem farm near the county line in Harris district and topped the Oriskany sand at about 4,326 feet. There was 17 to 20 feet of good Oriskany sand capable of being a reservoir and then cherty lime to the present depth of 4,369 feet. The sand was absolutely void of any showing but it will be deepened possibly to the Newburg.

A third deep test has reached an interesting stage in Steel district, Wood County, where the Belmont Quadrangle Co. topped the Corniferous lime at 4,964 feet in the test on the C. D. White farm, and is drilling 50 feet in that formation.

A new location for another outside deep test in West Virginia has been announced. In Pleasants County the Columbian Carbon Co. has made a location on the consolidation of the N. L. Ervin, Giles Hammat heirs and Edward Hammat heirs in Grant district, and it will be drilled to the Oriskany sand. It is in the quadrangle block latitude 39 degrees 25 minutes—longitude 81 degrees 15 minutes, with a surface elevation of 966.5 feet and about 1 mile southwest of Belmont and 1 mile south of Eureka on the Ohio River. It is just west of the surface high of the Burning Springs anticline and the southern end of the north closure. This will be the third test on the large anticline.

During the week 28 operations were reported, of which nine were dry, six gas wells, and 13 producers with a daily initial of 77 bbls. Most of the new work was in Southeast Ohio.

SOUTHEAST OHIO

One outside deep test in Southeast Ohio was drilled through the Red Medina, and it is a dry hole. In the northeast corner of Crawford Township, Lot 30, Coshocton County, Wittmer Oil Gas Properties drilled a test on the S. P. Balder farm to about 4,100 feet and found only a broken sand after passing through the lime to the Clinton horizon and below to the show of Red Medina.

Several other operations were also dry. In Athens County, Burn Oil & Gas Co. drilled No. 10 W. G. Selby one-half mile north of Sharpsburg in section 30, Bern Township, through the Maxon sand to 925 feet and it was dry.

In Coshocton County, Upham & Perkins drilled a test on the Albert Wolfe farm in section 16, New Castle Township, through the Clinton sand to 2,966 feet and it was dry.

In Licking County G. S. Lacknett and others completed No. 6 W. W. Reynolds in section 16, Perry Township, in the Berea sand at 810 feet. It produced 20 bbls. the first day after being shot. In the southeast quarter, section 16, Newton Township, the Bebout Brothers drilled a test on the Levi Lynn farm through the Berea sand to 649 feet and it was dry. The top of the Berea was at 639 feet.

In Medina County Preston Oil Co. completed No. 24 Bertha B. and J. J. Parent farm, Tract 16, Lot 5, Chatham Township, in the Berea sand at 317 feet. It produced 17 bbls. the first day after shot.

In Morgan County three small wells were completed on the A. A. Boileau farm at Joy in section 2, Homer Township. The No. 5 by Schwartz & Dunn is a half-barrel pumper in the First Cow Run sand at 86 feet and the No. 6 made the same quantity in this formation at 76 feet. No. 7 by H. H. Schwartz, trustee, is a well of the same size in the Cow Run at 69 feet.

In Washington County Depuy Brothers completed a second test on the Irvin Hendershot farm in the northwest quarter section 21, Liberty Township, in the lime at 1,390 feet and it produced 8 bbls. the first day before being shot, with 120,000 feet of gas. In section 19 of this township, Otto Heldman and others completed a second test on the Marion Epler heirs in the Second Cow Run sand at 1,180 feet, and it is a gas well gauging 125,000 feet a day. In section 3, same township. Homer Burkhart and others completed a test on the W. Hall farm in the Squaw sand at 1,620 feet and it is a gas well gauging 100,000 feet a day.

Two miles northeast of Fleming, section 35, Warren Township, Washington County, Fisher Farm Oil Co. drilled a test on the Raymond Martin farm through the First Cow Run sand to 732 feet and it is dry. In section 17, Warren Township, Rose and others drilled No. 17 James M. Cooper through the same formation to 940 feet without production.

Three miles east of Chesterhill, Lot 1149, Wesley Township, Washington County, Coal Creek Oil & Gas Co. drilled a test on the Thomas Emmons farm through the Peaker sand to 315 feet and it was dry. In Barlow Township, a mile south of Fleming, section 2, D. T. Orndoff drilled No. 3 Phillips Roe, Jr., through the Maxon sand to 1,522 feet and it was dry.

In Wayne County David Shafer completed a test on the John Campbell farm, 2 miles west of Harmanville, section 28, Canaan Township, in the Clinton sand at a depth of 3,270 feet. It had a show of oil which increased to 5 bbls. the first day after shot.

SOUTHWEST PENNSYLVANIA

One well was completed in Southwest Pennsylvania. In Hanover Township, Washington County, K. Aten and others completed the test on the Lee Dewitt farm in the Salt sand topped at 671 feet and a final depth of 700 feet. It is a gas well gauging 293,900 feet a day with a low rock pressure.

In this county several wells are drilling. In North Strabane Township Penn Ohio Oil & Gas Co. has reached 485 feet in the test on the W. E. Davis farm. In Peters Township Carnegie Natural Gas Co. is drilling in the Gantz sand at 2,614 feet, deepening the test on the J. N. Guthrie farm.

In Amwell Township, Washington County, Carnegie Natural Gas Co. is drilling at 2,576 feet, deepening the F. M. Closser test. The Wise Oil & Gas Co. has rigged up the No. 2 Ensley Kelsey to deepen it. Union Gasoline & Oil Corp. is down 605 feet in No. 2 Leroy Vankirk. In Morris Township, Washington County, this company has reached 2,730 feet in the No. 4 W. E. Craft, with the Nineveh Thirty-Foot sand at 2,708 feet; gas at 2,713-15 feet; Fifty-Foot sand 2,601-25 feet; gas at 2,618-25 feet. The total gas is 200,000 feet a day.

WEST VIRGINIA

Several small producers were completed in West Virginia. In Boone County Pure Oil Co. completed No. 285 Williams Coal Co. in Sherman district at 3,364 feet, Berea sand, and it is good for 5 bbls. a day.

In Ritchie County the First National Bank of St. Marys for Schultz Oil Co. completed No. 2 T. C. Hammett at 1,852 feet, the Squaw sand, and it is good for 10 bbls. a day. It is in Grant district where also Reno Oil Co. completed No. 3 G. B. Rossom in the Injun sand at 1,800 feet and it is showing for 2 bbls. a day.

In Cabell County, H. L. Skidmore and Jett completed a second test on the L. D. Kress farm in McComas district, as a fair gas well. Brown shale was found at 2,960-3,260 feet with 2,000,000 feet of gas showing at 3,090 feet and 3,250-60 feet. In this district, R. C. and D. R. Campbell deepened No. 1 Gilbert Holton from 1,821 feet to 3,553 feet resulting in a gas well gauging 168,000 feet a day.

In Calhoun County, F. F. McIntosh test on the R. M. Marshall farm in Lee district is a gasser at 2,185 feet, in Injun sand. The gauge was 23,500 feet a day before shot.

In Lincoln County, the Kanawha Gas & Utilities Co. completed deepening No. 1 Leslie Adkins in Union district from 2,336 feet to 3,661 feet and it is a gas well gauging 104,000 feet a day. The Brown shale was at 3,214-3,639 feet with gas at 3,311 and 3,360-3,610 feet.

In Clay district, Ritchie County, Dr. E. S. Woodyard completed a test on the W. H. and D. M. Bradford farm in the Cow Run sand at 872 feet and it is showing for 3 bbls. a day. In Murphy district, W. H. Bickel completed a test on the Printy heirs farm in the Squaw sand at 2,041 feet. It is showing for 2 bbls. a day with 100,000 feet of gas before shot.

In Union district, Ritchie County, Ergactus Oil & Gas Co. drilled a test on the Emma G. Nangle farm to 1,890 feet, the Squaw sand, and it was abandoned as a dry hole. There was a showing of 84,000 feet of gas a day in the Salt sand, which was exhausted.

In Wirt County W. C. Patterson completed No. 20 on the Robertson Petroleum tract in Clay district in the Cow Run sand at 485 feet and it is showing for 2 bbls. a day.

Gas Wells

In Gilmer County McCall Drilling Co. completed a test on the H. H. J. Fling farm in DeKalb district in the Big Injun sand, and it is a gas well gauging 40,000 feet a day before being shot.

In Nicholas County Hope Natural Gas Co. completed No. 7795 on the Federal Coal Co. tract in Jefferson district at a depth of 3,685 feet and it gauges 42,485 feet a day.

In Putnam County H. H. Pine deepened the test on the P. S. Eggleston farm in Scott district from 1,865 feet to 2,365 feet, and it is a gas well gauging 68,000 feet a day. The Berea sand was at 2,334-60 feet.

Oriskany Gas Field

No wells were completed in the Oriskany gas pools in Kanawha County during the week, but additional locations were announced. In Poca district Mullins Gas Co. and Linden Drilling Co. have a location for a test on the J. C. Fisher farm. In this district Mullins Gas Co. has one for a test on the W. H. O'Dell farm. West Virginia Gas Corp. has a location for a test on the Spencer Canterbury farm in Poca district with a surface elevation of 908.7 feet.

In Union district Columbian Carbon Co. topped the Corniferous lime at 5,038 feet on the Nelson H. Cavender farm and is drilling at 5,075 feet. West Virginia Gas Corp. reached this formation at 4,835 feet in the R. W. St. Clair and others test and is drilling at 4,853 feet and also drilling at 4,117 feet in the J. E. Layne and others test.

In Malden district, North Eight Producing Co. has reached 4,760 feet, deepening the L. E. and R. Belcher test. In Elk district Columbian Carbon Co. is down 4,012 feet in the B. F. Jones test, 510 feet in No. 12 C. W. Vickers.

Deep Tests

In Jackson County United Carbon Co. has reached 1,365 feet in the No. 3 Elizabeth Ward in Washington district. In Ripley district Cunningham Gas Co. is drilling at 3,265 feet on the E. F. Cunningham farm.

In Lubeck district, Wood County, W. H. Bickel has run casing to 4,385 feet in the test on the W. H. Bickel tract, which will now be deepened to the Oriskany sand.

WILDCAT OPERATIONS

CALIFORNIA

IMPORTANT WELLS AND NORTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
Wilshire Oil, No. 1 Gaviota, Santa Barbara	35- 5-33	4,050	gr. sd. drlg.
General Pet., No. 18 Erburu, Capitan, Santa Barbara	32- 5-30	1,340	pump. 135 b.d.
General Pet., No. 23 Erburu, Capitan, Santa Barbara	5- 4-30	1,181	sd. sh. drlg.
Oakburn Drlg., No. 1 Wagner, Capitan, Santa Barbara	tideland	1,302	will deepen
South Crude Oil, No. 2-191, Coal Oil Pt., S. Barbara	tideland	5,510	redrlg. 2,218
Bankline Oil, No. 1 Silva, Santa Maria, Santa Barbara	7- 9-33	5,000	sd. sh. drlg.
Pacific West. Oil, No. 1 Car., Santa Maria, S. Barbara	28-10-34	4,196	sd. sh. drlg.
G. & B. Oil, No. 1 B. & G., Santa Maria, Santa Barbara	26-10-34	4,860	sd. sh. drlg.
Selegna Oil, No. 1 S. M., Santa Maria, Santa Barbara	26-10-34	4,695	sd. sh. drlg.
Signal Oil, No. 12 Yelkin, Santa Maria, S. Barbara	26-10-34	4,380	sd. sh. drlg.
Union Oil, No. 1 McCoy, Santa Maria, Santa Barbara	27-10-34	5,285	sd. sh. drlg.
Union Oil, No. 1 Mallory, Santa Maria, Santa Barbara	27-10-34	5,020	sd. sh. drlg.
Union Oil, No. 2-2 O'Donnell, Santa Maria, S. Barbara	20-10-34	5,240	pump. 145 b.d.
Union Oil, No. 3 Vicente, Santa Maria, Santa Barbara	21-10-34	2,743	sd. sh. drlg.
Union Oil, No. 1-Nivolai, Santa Maria, Santa Barbara	28-10-34	3,130	sd. sh. drlg.
Union Oil, No. 3 Bradley, Santa Maria, Santa Barbara	25-10-34	4,915	pump. 893 b.d.
Wilson Oil, No. 1-B, Santa Maria, Santa Barbara	28-10-34	5,373	milling
Jones, F. E., No. 2 Wisconsin, Santa Maria, S. Barbara	27-10-34	4,657	cleaning out
Standard Oil, No. 1 Cat Canyon, Santa Barbara	27- 9-33	5,529	redrlg. 5,396
O'Donnell, J. E., No. 1 Helen, Lompoc, Santa Barbara	8- 7-33	3,360	sd. sh. drlg.
Douglas Oil, No. 1, Los Alamos, Santa Barbara	8- 8-33	3,765	sd. sh. drlg.
United West. Oil, No. 1, Los Olivos, Santa Barbara	16- 7-30	3,230	hd. sd. drlg.
High Mesa Oil, No. 1 Butcher, Ojai, Ventura	16- 4-22	1,420	hd. sh. drlg.
St. Louis Oil, No. 1 Pirle, Ojai, Ventura	18- 4-22	2,711	cleaning out
Rowe, W. G., No. 1 Johnson, Oxnard, Ventura	15- 1-22	4,475	fish. tubing
Texas Co., No. 5 Yale, South Mountain, Ventura	13- 3-21	5,150	gr. sd. drlg.
Merchants Pet., No. 8 Sespe, Ventura	1- 4-20	565	sd. sh. drlg.
Claran, F. E., No. 1 Hardison, Sespe, Ventura	32- 4-20	394	cleaning out
Condor Oil, No. 1 Dorman, Sespe, Ventura	6- 4-19	2,145	O.S. drlg.
Continental Oil, No 1 Elkins, Hopper Canyon, Ventura	23- 4-19	4,157	P.B. 3,225
C. C. M. Oil, No. 21 Hobson, Rincon, Ventura	8- 3-24	4,176	gr. sd. drlg.
Richfield Oil, No. 8-F Hobson, Rincon, Ventura	8- 3-24	1,998	hd. sd. drlg.
Tide Water A., No. 19 V.L.W., Ventura Ave., Ventura	26- 3-23	9,227	O.S. drlg.
Tide Water A., No. 75 Lloyd, Ventura Ave., Ventura	26- 3-23	5,198	sd. sh. drlg.
Tide Water A., No. 76 Lloyd, Ventura Ave., Ventura	27- 3-23	4,955	O.S. drlg.
Tide Water A., No. 111 Lloyd, Ventura Ave., Ventura	27- 3-23	7,405	sd. sh. drlg.
Tide Water A., No. 127 Lloyd, Ventura Ave., Ventura	27- 3-23	5,480	sd. sh. drlg.
Tide Water A., No. 7 Hartman, Ventura Ave., Ventura	22- 3-23	3,070	sd. sh. drlg.
Tide Water A., No. 11 McGonigle, Ventura, Ventura	23- 3-23	6,171	sd. sh. drlg.
Shell Oil, No. 96 Taylor, Ventura Ave., Ventura	28- 3-23	2,140	sd. sh. drlg.
Shell Oil, No. 31 Edison, Ventura Ave., Ventura	20- 3-23	5,972	sd. sh. drlg.
Shell Oil, No. 37 Gosnell, Ventura Ave., Ventura	28- 3-23	8,375	sd. sh. drlg.
General Pet., No. 13 Notten, Ventura Ave., Ventura	28- 3-23	9,871	P.B. 8,948
General Pet., No. 18 Barnard, Ventura Ave., Ventura	21- 3-23	1,980	sd. sh. drlg.
Lloyd Corp., No. 1 Dabney-Lloyd, Ventura, Ventura	24- 3-23	6,870	gr. sd. drlg.
Amerada Pet., No. 5 Beer, Devils Den, Kern	22-26-19	8,297	redrlg. 7,160
Gibson Oil, No. 3 Aiferitz, Devils Den, Kern	14-25-18	521	sd. sh. drlg.
Franco-Western Oil, No. 15, McKittrick, Kern	8-30-22	2,090	sd. sh. drlg.
Leyse & Sonne, No. 1 Pasadena, McKittrick, Kern	28-30-22	2,730	sd. sh. drlg.
Chico-Martinez Oil, No. 1 Holly, So. Beiridge, Kern	1-29-20	1,106	sd. sh. drlg.
Randan Pet., No. 1 Theta, Lost Hills, Kern	3-26-20	1,625	cmtd. 1,535
Beiridge Oil, No. 27-5 North Beiridge, Kern	27-27-20	6,960	br. sh. drlg.
Beiridge Oil, No. 27-6 North Beiridge, Kern	27-27-20	8,400	cleaning out
Beiridge Oil, No. 35-26 North Beiridge, Kern	35-27-20	7,995	sd. sh. drlg.
Tide Water A. O., No. 3-21 North Beiridge, Kern	21-27-20	7,175	br. sh. drlg.
Richfield Oil, No. 2 North Beiridge, Kern	22-27-20	6,100	br. sh. drlg.
Texas Co., No. 3 Martin, North Beiridge, Kern	22-27-20	8,435	flow. 995 b.d.
Texas Co., No. 4 Martin, North Beiridge, Kern	22-27-20	6,597	br. sh. drlg.
General Pet., No. 1 St. Helens, Beiridge, Kern	12-28-20	8,685	P.B. 1,400
Pan-May Oil, No. 1 Coffee, Round Mountain, Kern	31-27-29	1,033	gr. sd. drlg.
Shamrock Pet., No. 7 Coffee, Round Mountain, Kern	6-28-29	1,665	sd. sh. drlg.
Eastmont Oil, No. 7 Olcese, Round Mountain, Kern	16-28-29	996	sd. sh. drlg.
Shell Oil, No. 17 Freeman, Round Mountain, Kern	20-28-29	1,934	pump. 797 b.d.
Shell Oil, No. 3 Olcese-Lilly, Round Mountain, Kern	21-28-29	1,491	sd. sh. drlg.
McDonald & Dearin, No. 4, Kern Front, Kern	11-28-27	1,280	sd. sh. drlg.
Rubenstein, A. B., No. 1 Lerdo, Kern	20-28-27	3,302	pump. water
Fuhrman, Alfred, No. 25 Kern River, Kern	21-28-28	487	sd. sh. drlg.
Helm & Smith, No. 3-A Kernco, Kern River, Kern	34-28-28	650	O.S. drlg.
Hast Oil, No. 2 Kern, Kern River, Kern	34-28-28	211	sd. sh. drlg.
Shell Oil, No. 2 Durnal, Adobe Canyon, Kern	24-27-28	817	dry; abd.
W. P. W. Oil, No. 3 Packard, Mount Poso, Kern	14-27-28	1,356	dry; abd.
Framac Oil, No. 3 Brown, Mount Poso, Kern	22-27-27	1,351	cleaning out
Master Pet., No. 3 Recovery, Mount Poso, Kern	33-26-28	1,599	cmtd. 1,585
Western Gulf Oil, No. 36 KCL, Fruitvale, Kern	14-29-27	2,997	sd. sh. drlg.
Hogan Pet., No. 11 Porter, Mountain View, Kern	29-30-29	2,371	sd. sh. drlg.
Johnson, G. W., No. 1 Brown, East Edison, Kern	33-29-30	1,051	sd. sh. drlg.
Stevens, R. W., No. 1 Sivert, Kern	22-30-30	26	sd. sh. drlg.
Union Oil, No. 1 Berry, Arvin, Kern	15-31-29	6,135	cleaning out
Petrex, Inc., No. 1 Edison, Arvin, Kern	32-31-30	4,030	sd. sh. drlg.
Continental Oil, No. 1 Seaboard, KCL, Wasco, Kern	26-27-24	10,243	cleaning out
Superior Oil, No. 3 Wagner, Rio Bravo, Kern	35-28-25	11,516	O.S. drlg.
Superior Oil, No. 4 Wagner, Rio Bravo, Kern	35-28-25	10,280	sd. sh. drlg.
Superior Oil, No. 2 Geissinger, Bravo, Kern	35-28-25	9,580	sd. sh. drlg.
Superior Oil, No. 1 Anderson, Rio Bravo, Kern	35-28-25	10,690	sd. sh. drlg.
Superior Oil, No. 1 Helbling, Rio Bravo, Kern	1-29-25	7,481	sd. sh. drlg.
Union Oil, No. 2-34 KCL, Rio Bravo, Kern	34-28-25	11,204	fishing casing
Union Oil, No. 3-34 KCL, Rio Bravo, Kern	34-28-25	9,290	sd. sh. drlg.
Getty Oil, No. 2 Ramsey, Rio Bravo, Kern	35-28-25	3,390	sd. sh. drlg.
General Pet., No. 1 Wagoner, Rio Bravo, Kern	35-28-25	10,192	redrlg. 7,787
General Pet., No. 2 Wagoner, Rio Bravo, Kern	35-28-25	11,000	sd. sh. drlg.
Standard Oil, No. 18-1 KCL, Una, Kern	29-28-26	8,280	sd. sh. drlg.
Shell Oil, No. 83-35 KCL, McFarland, Kern	35-26-25	6,080	sd. sh. drlg.
Harp Bros., No. 1 Armstrong, McFarland, Kern	9-26-26	1,680	bl. sh. drlg.
Dilmar Oil, No. 1 Quinn, Jasmin, Kern	15-25-27	2,956	P.B. 2,875
Standard Oil, No. 11-2 KCL, Greeley, Kern	20-29-26	11,520	O.S. drlg.
Standard Oil, No. 11-15 KCL, Greeley, Kern	18-29-26	3,981	sd. sh. drlg.
Continental Oil, No. 1-E KCL, Stevens, Kern	17-30-26	8,287	tested wet
Standard Oil, No. 15-2 KCL, Canfield Ranch, Kern	27-30-26	4,051	sd. sh. drlg.
Shell Oil, No. 38-29-A KCL, Ten Section, Kern	29-30-26	4,740	sd. sh. drlg.
Shell Oil, No. 47-30-B KCL, Ten Section, Kern	30-30-26	8,220	O.S. drlg.
Shell Oil, No. 58-30-B KCL, Ten Section, Kern	30-30-26	7,798	sd. sh. drlg.
Shell Oil, No. 58-20-B KCL, Ten Section, Kern	20-30-26	3,190	sd. sh. drlg.
Shell Oil, No. 32-13-A KCL, Canal, Kern	13-30-25	7,790	sd. sh. drlg.
Ohio Oil, No. 6-E KCL, Canal, Kern	14-30-25	8,260	O.S. drlg.
Ohio Oil, No. 8-A KCL, Buena Vista Lake, Kern	32-31-26	10,630	hd. sd. drlg.
Signal Oil, No. 5 Kendon, Midway-Sunset, Kern	35-32-23	781	sd. sh. drlg.
Berry & Ewing, No. 2 Midway-Sunset, Kern	31-32-24	1,221	pump. 35 b.d.
Texas Co., No. 1 Pioneer, Midway-Sunset, Kern	33-11-23	8,464	fish. D.P.
Surprise Oil, No. 3, Midway-Sunset, Kern	36-32-23	385	sd. sh. drlg.
National Oil, No. 18, Midway-Sunset, Kern	35-32-23	390	sd. sh. drlg.
A.B.S. Corp., No. 12 Lewis, Sunset, Kern	20-11-23	3,890	P.B. 3,181
Ohio Oil, No. 3-D, Tejon Ranch, Kern	28-11-18	1,897	sd. sh. drlg.
Petrol Corp., No. 33-5 Reserve, Tejon Ranch, Kern	33-11-19	1,862	sd. sh. drlg.
Shell Oil, No. 4-26 KCL, San Emidio, Kern	26-11-22	9,670	sd. sh. drlg.
Richfield Oil, No. 1 KCL, Wheeler Ridge, Kern	28-11-20	2,981	sd. sh. drlg.
Pure Oil, No. 1 SPL, Cantua, Fresno	31-18-17	10,862	fish D.P.
Pet. Sec., No. 2 Gatchell, Turk, Fresno	18-20-16	6,850	cmtd. 6,700
Dauphin Dev., No. 1 Boone, Alcade, Fresno	30-21-14	3,778	redrlg. 2,354
Wilcox, J. F., No. 6, Coalinga, Fresno	11-20-14	565	O.S. drlg.
K. N. D. A., No. 67-20-J Kettleman North, Fresno	20-21-17	10,781	sd. sh. drlg.
K. N. D. A. No. 6-8-Q Kettleman North, Kings	6-22-18	8,719	C.P. 7,810
K. N. D. A., No. 38-8-Q Kettleman North, Kings	8-22-18	8,513	redrlg. 8,480
K. N. D. A., No. 27-16-Q Kettleman North, Kings	16-22-18	6,720	br. sh. drlg.
K. N. D. A., No. 58-16-Q Kettleman North, Kings	16-22-18	7,460	gr. sd. drlg.
K. N. D. A., No. 47-18-Q Kettleman North, Kings	18-22-18	8,004	cmtd. 7,385
K. N. D. A., No. 43-20-Q Kettleman North, Kings	20-22-18	7,492	hd. sh. drlg.
K. N. D. A., No. 27-22-Q Kettleman North, Kings	22-22-18	5,860	br. sh. drlg.
Standard Oil, No. 46-13-H Kettleman North, Fresno	13-21-16	10,652	sd. sh. drlg.
Standard Oil, No. 27-21-J Kettleman North, Fresno	21-21-17	10,919	tested wet
Standard Oil, No. 58-33-J Kettleman North, Fresno	33-21-17	8,318	gr. sd. drlg.
Standard Oil, No. 2-11-P Kettleman North, Kings	11-22-17	8,380	flow. 165 b.d.
Standard Oil, No. 78-1-P Kettleman North, Kings	1-22-17	6,794	gr. sd. drlg.
Standard Oil, No. 21-13-P Kettleman North, Kings	13-22-17	7,248	redrlg. 6,290
Standard Oil, No. 74-7-Q Kettleman North, Kings	7-22-18	7,030	sd. sh. drlg.
Standard Oil, No. 85-7-Q Kettleman North, Kings	7-22-18	7,950	C.P. 7,430

KEY TO ABBREVIATIONS USED IN DRILLING REPORTS

Abd., abandoned.
Acd., acidized.
B.O., barrels of oil.
B.P.D., barrels per day.
B.D., barrels daily.
B.P., back pressure.
B.R., building rig.
Br. sh., brown shale.
B.S., basic sediment.
Cd. or Crd., cored.
C.D., corrected depth.
Cg., coring.
Cmtd., cemented.
C.O., cleaning out.
Comp., completed.
Compr., compressor.
C.P., casing pressure, also cement through perforations.
Csg., casing.
D.D., drilling (or drilled) deeper.
Drlg. or Drg., drilling.
Drlr. or Dk., derrick.
D.S., drill stem.
D.&A., dry and abandoned.
Fsg., fishing.
Gbo., gumbo.
G.I., gas injection.
Gr., gravity.
Gr. sd., gray sand.
Grn. sh., green shale.
Hd. sd., hard sand.
H.F.W., hole full of water.
I.P., initial production.
L., lime.
L.D.D., later drilled deeper.
Lnr., liner.
Loc., location.
M.I.M., moving in material.
M.I.R., moving in rig.
M.I.R.T., moving in rotary tools.
M.O.T., milling on tools.
O.I.H., oil in hole.
O.S., oil sand.
O.T.D., old total depth.
O.W.D.D., old well drilling deeper.
O.W.P.B., old well plugging back.
P.B., plugging or plugged back.
P.B.P., pulling or pulled big pipe.
P.L., pipe line.
P.L.O., pipe line oil.
Pmpg., pumping.
P.O.P., putting on pump.
P.P., pulled pipe.
Rd. sd., red sand.
Rd. sh., red shale.
Recmt., recemented.
Rmg., reaming.
Redrlg., redrilling.
Rng., running.
R.O.G., rig on ground.
R.P., rock pressure.
R.U., rigging up.
R.U.R., rigging up rotary.
R.U.S.T., rigging up standard tools.
R.&T., rods and tubing.
S. or Sd., sand.
S.D., shut down.
Sdy. sh., sandy shale.
Sdtr., or St. sidetracking.
S.D.P.L., shut down for pipe line.
S.D.O., or S.D.W.O., shut down awaiting orders.
S.G., show gas.
Sh.&L., shale and lime.
S.I., shut in.
S.I.P., shut in, prorated.
S.L.M., steel line measurement.
S.O., show oil.
S.O.G.&W., show of oil, gas and water.
Spdg. or Spd., spudding.
S.R., straightreaming.
Stdg., standardizing (also standing).
S.W., salt water.
Swbg., swabbing.
T.A., temporarily abandoned.
Tbg., tubing.
T.D., total depth.
T.P., tubing pressure.
Tr., tract.
U.R., underreaming.
W.I.H., water in hole.
W.O., workover.
W.O.C. or W.O.C.S., waiting for cement to set.
W.P., working pressure.
W.S.O., water shutoff.
W.S.S.O.K., water shutoff O.K.
W.S.O.N.G., water shutoff no good.
W.S.R. or W.O.S.R., awaiting standard rig.
Wtr., water.

Standard Oil, No. 61-21-Q Kettleman North. Kings	21-22-18	3,684	sd. sh. drlg.
Cal. Pet. Prod., No. 1 Elkhorn, San Luis Obispo	6-10-25	1,681	gr. sd. drlg.
Hancock Oil, No. 1 Dick, Huasna, San Luis Obispo	30-12-33	3,361	rigging up
W. Plains Oil Co., No. 2 Panorama Hills, S. L. Obispo	2-32-21	2,595	sd. sh. drlg.
Baringer & Gould, No. 2 Sears, Ducor, Tulare	29-24-28	862	dry; abd.
Crusaders Oil, No. 1 Ducor, Tulare	1-24-27	320	sd. sh. drlg.
Caminol Co., No. 3 A. O. B., Allensworth, Tulare	29-24-24	7,555	cleaning out
Wilshire Oil, No. 1 Cowell, Half Moon Bay, S. Mateo	20- 6-5	8,030	P.B. 2,525
Ohio Oil, No. 1-A Willard, Willows, Glenn	18-20-2	4,330	sd. sh. drlg.
Richfield Oil, No. 1 Potrero Hills, Solano	10- 4-1	3,250	will P.B.
Amerada Pet., No. 2 S.S.J., Rio Vista, Solano	18- 4-3	4,397	gas well

IMPORTANT WELLS AND SOUTHERN CALIFORNIA WLDCATS

Company, well and location—	S.T.R.	Depth	Status
Basin Oil, No. 1, Potrero, Los Angeles	34- 2-14	4,666	flow. 430 b.d.
Ohio Oil, No. 12 Gough, El Segundo, Los Angeles	7- 3-14	7,411	sd. sh. drlg.
Apex Pet., No. 3 Elsie, El Segundo, Los Angeles	12- 3-15	6,996	sd. sh. drlg.
Sovereign Oil, No. 2, El Segundo, Los Angeles	12- 3-15	5,994	sd. sh. drlg.
Treasure Oil, No. 3, Playa Del Rey, Los Angeles	21- 2-15	6,448	sd. sh. drlg.
D. & B. Oil, No. 1, Lomita, Los Angeles	30- 4-13	5,275	sd. sh. drlg.
Patton-Conway, No. 1 fee, Torrance, Los Angeles	15- 4-14	4,381	sd. sh. drlg.
McCaslin, W. E., No. 1 Whitney, Torrance, L. Angeles	23- 4-14	5,042	sd. sh. drlg.
Grubbs & Main, No. 1 Lyman, Torrance, Los Angeles	14- 4-14	4,206	cleaning out
Gypsy Oil, No. 16 Getty, Torrance, Los Angeles	14- 4-14	3,820	redrlg. 2,297
Albertson Oil, No. 2, Torrance, Los Angeles	14- 4-14	4,798	sd. sh. drlg.
Ind. Drlg., No. 1 Mitchell, Torrance, Los Angeles	14- 4-14	4,810	will deepen
McCowan Oil, No. 1 Lora, Torrance, Los Angeles	23- 4-14	4,780	will deepen
McDonald & Burns, No. 5 Moore, Torrance, L. Angeles	23- 4-14	4,994	sd. sh. drlg.
McDonald & Burns, No. 7 Moore, Torrance, L. Angeles	23- 4-14	3,775	rigging up
McDonald & Burns, No. 8 Moore, Torrance, L. Angeles	22- 4-14	5,041	sd. sh. drlg.
Lomita Drlg., No. 1 Stevenson, Torrance, L. Angeles	23- 4-14	3,284	sd. sh. drlg.
Calmont Oil, No. 1 Talbert, Torrance, Los Angeles	23- 4-14	3,815	will deepen
M. P. S. Oil, No. 1 Julian, Torrance, Los Angeles	14- 4-14	3,801	rig
Camp, C. W., No. 12, Torrance, Los Angeles	23- 4-14	5,017	flow. 271 b.d.
Camp, C. W., No. 13, Torrance, Los Angeles	23- 4-14	3,800	rig
Doyle Pet., No, 3-A Getty, Torrance, Los Angeles	14- 4-14	5,610	deep test
Elexico Oil, No. 1 Allen, Torrance, Los Angeles	23- 4-14	3,760	sd. sh. drlg.
Charleston Oil, No. 1 Marcoux, Torrance, L. Angeles	14- 4-14	3,800	redrlg. 2,996
Marel Oil, No. 1 Leaver, Torrance, Los Angeles	14- 4-14	5,025	cleaning out
Kelley, F. C., No. 1 Wilson, Torrance, Los Angeles	14- 4-14	4,765	sd. sh. drlg.
Hughes, W., No. 2, Torrance, Los Angeles	23- 4-14	2,985	sd. sh. drlg.
Hughes, W., No. 3, Torrance, Los Angeles	14- 4-14	3,750	cleaning out
Krause & Baker, No. 2 Gladys, Torrance, L. Angeles	14- 4-14	3,795	rigged up
Peters Royalty, No. 1, Torrance, Los Angeles	14- 4-14	5,023	tested wet
Packard Pet., No. 1 Kelley, Torrance, Los Angeles	14- 4-14	3,806	will deepen
Consolidated Pet., No. 1, Torrance, Los Angeles	15- 4-14	5,000	O.S. drlg.
Texas Co., No. 9 Wilson, Torrance, Los Angeles	15- 4-14	4,997	sd. sh. drlg.
Texas Co., No. 10 Wilson, Torrance, Los Angeles	22- 4-14	4,360	sd. sh. drlg.
Texas Co., No. 11 Wilson, Torrance, Los Angeles	14- 4-14	4,592	sd. sh. drlg.
Wilson, R. K., No. 1 Cook, Torrance, Los Angeles	14- 4-14	4,987	pump. 238 b.d.
Star Pet., No. 1 G & A, Torrance, Los Angeles	23- 4-14	3,751	redrlg. 3,632
Silver Beach Oil, No. 1, Torrance, Los Angeles	14- 4-14	4,589	will deepen
Imperial Gypsum, No. 1 De Witt, Torrance, L. Ang.	14- 4-14	5,004	flow. 302 b.d.
Imperial Gypsum, No. 2 Getty, Torrance, L. Angeles	14- 4-14	3,785	rigged up
C. C. M. O., No. 8, Torrance, Los Angeles	15- 4-14	3,723	cleaning out
C. C. M. O., No. 13, Torrance, Los Angeles	15- 4-14	4,098	sd. sh. drlg.
C. C. M. O., No. 23, Torrance, Los Angeles	14- 4-14	5,023	P.B. 5,000
Hansco Oil, No. 1, Torrance, Los Angeles	14- 4-14	3,825	redrlg. 2,280
Kamco, Inc., No. 1, Torrance, Los Angeles	31- 3-13	3,798	sd. sh. drlg.
Berken Oil, No. 1 Star, Torrance, Los Angeles	15- 4-14	4,998	cleaning out
Stabler, W., No. 2 Marland, Dominguez, Los Angeles	3- 4-13	4,286	redrlg. 3,860
Union Oil, No. 58 Callender, Dominguez, Los Angeles	33- 3-13	7,570	sd. sh. drlg.
Barnsdall Oil, No. 3 Trust, Rosecrans, Los Angeles	18- 3-13	7,789	flow. 1,350 b.d.
Union Oil, No. 20 Rosecrans, Rosecrans, Los Angeles	18- 3-13	4,783	sd. sh. drlg.
Universal Consd., No. 3 Trust, Rosecrans, Los Angeles	18- 3-13	7,294	sd. sh. drlg.
Superior Oil, No. 8 Maxwell, Rosecrans, Los Angeles	19- 3-13	7,683	looks good
Barnsdall Oil Co., No. 3 S.F., Newhall, Los Angeles	26- 4-17	5,796	sd. sh. drlg.
Shell Oil, No. 1 Dougherty, Saugus, Los Angeles	9- 4-17	1,478	sd. sh. drlg.
Royal Lands, No. 1, Ramona, Los Angeles	8- 4-17	680	sd. sh. drlg.
General Pet., No. 3 Blinn, Wilmington, Los Angeles	4- 5-13	2,691	sd. sh. drlg.
General Pet., No. 4 Harbor, Wilmington, Los Angeles	2- 5-13	2,905	sd. sh. drlg.
General Pet., No. 12 Harbor, Wilmington, Los Angeles	2- 5-13	3,358	O.S. drlg.
General Pet., No. 3-S.P., Wilmington, Los Angeles	3- 5-13	4,125	O.S. drlg.
Hogan Pet., No. 3 Graham, Wilmington, Los Angeles	2- 5-13	3,127	sd. sh. drlg.
Hancock Oil, No. 4-A, Wilmington, Los Angeles	3- 5-13	4,050	O.S. drlg.
Hancock Oil, No. 10-B, Wilmington, Los Angeles	2- 5-13	2,480	sd. sh. drlg.
Hancock Oil, No. 24-C, Wilmington, Los Angeles	2- 5-13	2,592	sd. sh. drlg.
Hollywood Oil, No. 1 Baxter, Wilmington, L. Angeles	35- 4-13	3,329	flow. 585 b.d.
Richfield Oil, No. 1-P.D., Wilmington, Los Angeles	2- 5-13	2,690	sd. sh. drlg.
Richfield Oil, No. 2-P.D., Wilmington, Los Angeles	2- 5-13	4,237	flow. 2,572 b.d.
Richfield Oil, No. 3-P.D., Wilmington, Los Angeles	2- 5-13	4,252	flow. 3,342 b.d.
Richfield Oil, No. 5-P.D., Wilmington, Los Angeles	2- 5-13	3,120	O.S. drlg.
Richfield Oil, No. 6-P.D., Wilmington, Los Angeles	2- 5-13	4,204	O.S. drlg.
Richfield Oil, No. 11-P.D., Wilmington, Los Angeles	2- 5-13	3,658	cleaning out
Richfield Oil, No. 18-P.D., Wilmington, Los Angeles	2- 5-13	3,043	flow. 405 b.d.
Richfield Oil, No. 2-R.G., Wilmington, Los Angeles	2- 5-13	2,796	sd. sh. drlg.
Richfield Oil, No. 1-P.G., Wilmington, Los Angeles	2- 5-13	3,903	flow. 2,500 b.d.
Richfield Oil, No. 3-P.G., Wilmington, Los Angeles	2- 5-13	1,987	sd. sh. drlg.
Republic Pet., No. 1 Harbor, Wilmington, L. Angeles	2- 5-13	1,992	sd. sh. drlg.
Sunray Oil, No. 2 Lakme, Wilmington, Los Angeles	32- 4-13	2,665	sd. sh. drlg.
Universal Consd., No. 4 Newport, Wilmington, L. A.	2- 5-13	2,197	sd. sh. drlg.
Universal Consd., No. 5 Newport, Wilmington, L. A.	2- 5-13	4,150	O.S. drlg.
Union Pacific, No. 73, Wilmington, Los Angeles	34- 4-13	3,960	flow. 8,247 b.d.
Union Pacific, No. 6-E, Wilmington, Los Angeles	3- 5-13	3,910	O.S. drlg.
Union Pacific, No. 7-E, Wilmington, Los Angeles	3- 5-13	3,836	O.S. drlg.
Union Pacific, No. 8-E, Wilmington, Los Angeles	3- 5-13	3,440	O.S. drlg.
Union Pacific, No. 9-E, Wilmington, Los Angeles	3- 5-13	3,345	O.S. drlg.
Union Pacific, No. 1-P.D., Wilmington, Los Angeles	3- 5-13	2,198	sd. sh. drlg.
Union Pacific, No. 2-P.D., Wilmington, Los Angeles	3- 5-13	3,410	O.S. drlg.
Wilgate Oil, No. 1 Harbor, Wilmington, Los Angeles	2- 5-13	3,000	O.S. drlg.
Wil. O. & D., No. 1 Harbor, Wilmington, Los Angeles	33- 4-13	3,750	sd. sh. drlg.
St. Helens Pet., No. 26 Monterey, Montebello, L. Ang.	2- 2-12	5,790	flow. 3,300 b.d.
St. Helens Pet., No. 27 Monterey, Montebello, L. Ang.	2- 2-12	5,081	sd. sh. drlg.
St. Helens Pet., No. 2 Eggleston, Montebello, L. Ang.	2- 2-12	2,590	sd. sh. drlg.
Union Oil, No. 1 H. & S., Montebello, Los Angeles	2- 2-12	5,190	sd. sh. drlg.
Union Oil, No. 1 Wilcox, Montebello, Los Angeles	2- 2-12	6,248	flow. 1,050 b.d.
V-8 Oil, No. 1 Estelle, Montebello, Los Angeles	2- 2-12	1,073	sd. sh. drlg.
Standard Oil, No. 2 Harvey, Montebello, Los Angeles	2- 2-12	5,450	sd. sh. drlg.
Herley-Kelley, Inc., No. 1 Burke, Montebello, L. Ang.	2- 2-12	3,591	sd. sh. drlg.
Brookline Oil, No. 1 Drake, Montebello, Los Angeles	2- 2-12	5,398	sd. sh. drlg.
Colorado Oil, No. 19, Whittier, Los Angeles	22- 2-11	2,021	pump. dry
Hillidon Oil, No. 3 Poole, No. Long Beach, Los Angeles	13- 4-13	4,090	sd. sh. drlg.
Hillidon Oil, No. 4 Amebco, No. Long Beach, L. Ang.	13- 4-13	2,687	sd. sh. drlg.
Hillidon Oil, No. 1 Dominguez, No. Long Beach, L. A.	14- 4-13	6,996	sd. sh. drlg.
Signal Oil, No. 1 P.E., No. Long Beach, Los Angeles	13- 4-13	3,958	pump 155 b.d.
Johnston Drlg., No. 33, Long Beach, Los Angeles	13- 4-13	4,274	pump. 275 b.d.
Exeter Oil, No. 2-A Clark, Long Beach, Los Angeles	24- 4-13	3,501	pump. 50 b.d.
Dunlap Oil, No. 13, Long Beach, Los Angeles	30- 4-12	4,985	sd. sh. drlg.
Texas Co., No. 1 Wilson, Long Beach, Los Angeles	29- 4-12	3,465	fish P.D.
Winrock Oil, No. 1 Encinos, Long Beach, L. Angeles	13- 4-13	4,652	O.S. drlg.
Richfield Oil, No. 5-B, Long Beach, Los Angeles	13- 4-13	4,125	sd. sh. drlg.
J. E. F. Oil, No. 1 Schaaf, Huntington, Los Angeles	36- 5-11	4,400	cmtd. 4,340
Texas Co., No. 3 Pearce, Huntington, Orange	2- 6-11	4,080	O.S. drlg.
Brea Canyon Oil, No. 48, Brea Canyon, Orange	2- 3-10	3,798	sd. sh. drlg.
Standard Oil, No. 2, Bastanchury, W. Coyote, Orange	21- 3-10	5,983	P.B. 5,914
Shell Oil, No. 1 Weisel, Anaheim, Orange	16- 4-10	4,861	sd. sh. drlg.
Shell Oil, No. 1 Cuff, Richfield, Orange	29- 3-9	629	sd. sh. drlg.
Millerand Pet., No. 1 Miller, Yorba, Orange	22- 3-9	1,398	idle
Burmah Oil, No. 1 Sloan, Yorba, Orange	21- 3-9	2,339	pump 50 b.d.
Beth Oil, No. 1 Dillingham, Yorba, Orange	21- 3-9	1,945	sd. sh. drlg.
Holly Oil, No. 1 Harris, Yorba, Orange	21- 3-9	1,290	sd. sh. drlg.
A. V. Oil, No. 1 Costa Mesa, Orange	16- 6-10	396	sd. sh. drlg.

OKLAHOMA

Week Ending June 4

NORTHERN OKLAHOMA

Adair County

Maddon-Penn Mutual Life Ins. Co., C S½ NE NW sec. 5-16-24. T.D. 520 ft.; S.D.

Beckham County

Mid-American Oil Co. No. 1-A Biscoe, SW cor. sec. 28-8-22w. T.D. 2,764 ft.; S.D.

Canadian County

Supreme Oil Co. No. 1 Tilly, NW NW NE sec. 20-12-10w. T.D. 115 ft.; crooked hole; to skid.

Cimarron County

W. A. Delaney et al No. 1 Bugher, SE SE SW sec. 12-7-2w. T.D. 7,682 ft.; opened and flwd. 344 B.O. and 90 B. W. in 3 hrs. through csg.

Cleveland County

Barnsdall Oil Co. No. 1 School Ld., C NW SE sec. 35-5-5ecm. Drlg. 4,955 ft.

Coal County

Carter et al No. 1 Mote, C E½ SW NW sec. 19-2-9. T.D. 625 ft.

Comanche County

Midnite O. & G. Co. No. 1 Howe, NW NW NW sec. 20-2n-12w. Drlg. 230 ft.
Clyde Roach No. 1-A Green, SE SE SW sec. 2-1n-13w. T.D. 670 ft.; S.D.

Creek County

L. B. Jackson No. 1 Berryhill, NW NW NW sec. 1-18-10. Drlg. 2,015 ft.
M. W. Mosier et al No. 1 Holcomb, SE SW NW sec. 19-18-8. T.D. 3,018 ft.; 2,000 ft. W.I.H. and S.S.O.; S.D.

Garfield County

J. E. Kendall et al No. 1-A State, SW cor. sec. 13-23-3w. Spd.

Garvin County

First Natl. Oil Co. No. 1 Butterly, NE NE SE sec. 22-1n-1e. T.D. 100 ft.; R. U.R.

Grady County

Gulf Oil Corp. No. 1 Thomas, SW NW NW sec. 14-4-5w. T.D. 11,415 ft.; pipe stuck.

Greer County

J. H. Everitt No. 1 Graumann, NE NW NW sec. 11-5-21w. T.D. 550 ft.; S.D.

Hughes County

Homer Doup et al No. 1 Bank, NE NE NW sec. 7-7-9. S.D. 1,050 ft.
Phillaine Oil Co. No. 1 Morrison, SE SE SW sec. 13-9-10. T.D. 4,214 ft.; to P.B. to 4,000 ft.
Phillips Pet. Co. No. 1 Becker, NE NW SW sec. 8-5-10. T.D. 6,286 ft.; plug. 5,612 ft.; drld. out to 5,660 ft.; flwd. 156 B.O. in 24 hrs.; cut 40%.
Troup & Strickland No. 1 Brown, NW SW NE sec. 32-6-8. S.D. 660 ft.

Kay County

Helmerich & Payne No. 1 Sch. Ld., SW SE SW sec. 16-28-1w. T.D. 2,801 ft.; W.O.C.
Clark C. Nye No. 1 Willin, SE SE SW sec. 24-27-4. Cg. 3,016 ft.; S.S.O.&G.; rng. csg.
E. J. Shaffer et al No. 1 McKee, NE NW sec. 20-28-1w. T.D. 2,500 ft.; S.D.

Kiowa County

Anderson-Prichard Oil Corp. No. 1 Cribbs, sec. 28-7n-19w. Drlg. 1,395 ft.
Anderson-Prichard Oil Corp. No. 1 Johnson, sec. 10-7-20w. T.D. 1,210 ft.; fsg.
Anderson-Prichard Oil Corp. No. 1 Sch. Ld., SE SE SE sec. 14-6n-17w. T.D. 431 ft.; rng. csg.
Gauntt & Baker No. 1 Parks, NW NW SW sec. 29-7-20w. Drlg. 984 ft.
Hughes & Reese No. 1 Fultz, SE SE SE sec. 10-6-18w. T.D. 1,238 ft.; S.D.

Lincoln County

I.T.I.O. No. 1 Bailey, NW NW NE sec. 2-12-5. Drlg. 630 ft.
Wilcox O. & G. Co. No. 1 Royer, SE SE NE sec. 18-14-6. T.D. 3,372 ft.; P.B. 3,240 ft.; waiting.

Logan County

Sinclair-Prairie No. 1 Crews, SW SW NE sec. 27-16-1e. T.D. 5,215 ft.; flwd. by hds., est. 275-350 bbls.; well to dpn.

Muskogee County

T. P. Clants No. 1 Jennings, NW NW NE sec. 8-13n-19. S.D. 810 ft.
Heydrick No. 1 Paschall, NE SE NW sec. 22-13n-19. S.D. 678 ft.
O. K. Jackson No. 1-A Smith, SW NE NE sec. 23-16-15. S.D. 585 ft.

Murray County

Gilbreath & Dutton No. 1 Wolfe, C SE SW sec. 8-1-2. T.D. 2,522 ft.; perf.; 35,-334,000 ft. gas; S.I.; comp.

Okfuskee County

Burke-Greis Oil Co. No. 1 Capps, SE cor. sec. 7-13-7. T.D. 3,227 ft.; shot 2,818-48 ft.; 2,874 ft.; S.D. to D.D.
W. R. Ramsey et al No. 1 Parks, SE SE SE sec. 4-12n-7. T.D. 4,754 ft.; ran Schlumberger; D.&A.

Osage County

Chevalier-Simon No. 1 Osage, NW NW SW sec. 33-27-5. Drlg. 2,565 ft.
Norbla Oil Co. No. 1 Osage, SE cor. sec. 18-25-7. T.D. 2,784 ft.
Wah Sha She Oil Co. No. 1 Osage, NE NE NW sec. 4-28n-9. T.D. 1,503 ft.; S.D.

Pawnee County

O. O. Owens et al No. 1 Riddle, C E½ E½ NW sec. 30-22-7. Drlg. 2,510 ft.

Payne County

R. L. Kemp et al No. 1 Rafferty, SE SE NE sec. 6-18-5. T.D. 3,705 ft., sd.; shot and est. 10 B.O. and 300 B.W.; to P.B.
Texas Co. No. 1 Logan, C W½ NW NW sec. 12-17-1e. T.D. 4,956 ft.; flwd. 525 B.O. in 13 hrs.; est. 600,000 ft. gas; grav. 46; ran tbg. to 4,944 ft. and flwd. 275 B.O. in 6½ hrs.; opened and would not flow; S.I.

Pittsburg County

Supreme Oil Corp. No. 1 Hickey, NW SW NW sec. 4-2n-15. S.D. 643 ft.
Supreme Oil Co. No. 1 Stevenson, SW SW SE sec. 27-3n-14. S.D. 75 ft.

Pontotoc County

Anderson-Prichard No. 1 Mayer, SE SE SW sec. 19-3-8. Drlg. 892 ft.
Caloma Oil Corp. No. 1 Brents, SE NE SW sec. 4-1n-6. T.D. 1,574 ft.; fsg. tbg.
Farmers Mutual Royalty Corp. No. 1 Waite, NE NE NW sec. 9-5-5. Wilcox sd. 3,200 ft.; T.D. 3,234 ft.
Loss Henry No. 1 Parker, SW SW SE sec. 17-4n-8. T.D. 680 ft.; D.&A.
H. W. Lee No. 1 Weatherby, NW SE NW sec. 24-1n-7. S.D. 700 ft.
Jack Lynch et al No. 1-A Parker, SW SW SE sec. 17-4-8. T.D. 4,200 ft.; S.D.R.
Union Dev. Co. No. 1-A Abbott, SW NW NE sec. 34-3-6. Drlg. 828 ft. ft.; drlg. sh. 8,802 ft.

Pottawatomie County

C. W. James No. 1 Henderson, NW NW NE sec. 4-5n-3. Rig.
Pure Oil Co. No. 1 Lack et al, SE SW NW sec. 3-6-5. Dol. 4,091 ft.; T.D. 4,-116 ft.; to P.B. to Dol. and acdz.

Seminole County

Boetcher O. & G. No. 1 Morgan, SE NE NW sec. 8-5n-7. Drlg. 930 ft.
Denver P. & P. No. 1 Mathis, SW NW SW sec. 7-6-6. Drlg. 3,806 ft.
Indian States et al No. 1 Johnson, NE SE NE sec. 2-6-5. Drlg. 1,230 ft.
W. B. Pine No. 1 Wright, SE SE NE sec. 16-6-6. Drlg. plug to 3,566 ft.; shot and swbd. 22 B.O. in 3 hrs.; P.O.P.
Smith & Greer No. 1 Coker, NW NE NE sec. 25-7-5. T.D. 3,014 ft.; swb. 25 B. O. and 25 B.W. in 24 hrs.; P.O.P.
Villines et al No. 1 Reed, NE NE NE sec 35-7n-5. T.D. 3,005 ft.; P.B. 2,999 ft.; shot and swbd. 90 B.O. in 24 hrs. while rng. tbg.
Wood Oil Co. No. 1 Cully, SW SW NW sec. 34-7-5. T.D. 4,398 ft., Wilcox sd.

Washita County

L. B. McWhirter No. 1 fee, NW SW SW sec. 34-8-19w. T.D. 2,147 ft.; fsg.

SOUTHERN OKLAHOMA

Atoka County

C. M. Sheldon and Gardner Pet. Co. No. 1 Lee, NE NW SW sec. 2-4s-10e. T.D. 3,110 ft.; S.D.

Carter County

Texas Co. No. 1-B Cathey, SE NE NE sec. 6-5s-1w. T.D. 5,685 ft.; P.B. 5,477 ft.; shot; C.O.; 1,600 ft. F.I.H.

Choctaw County

Dr. Hardy et al No. 1 fee, SE SE NW sec. 21-7s-15. Drlg. 310 ft.
Clyde Ross et al No. 1 Hardy, SE SE NW sec. 21-7s-15. S.D. 800 ft.

Cotton County

Jim Turner et al No. 3 Collins, SE SE NE sec. 18-4s-10w. Drlg. 780 ft.

Creek County

L. B. Jackson No. 1 Berryhill, NW NW NW sec. 1-18n-10. Drlg. 250 ft.

Jefferson County

J. Roy Stebbins et al No. 1 Bourland, SW SW SE sec. 24-7s-4w. Arb. 4,442 ft.; T.D. 4,528 ft.; D.&A.

Love County

Sinclair Prairie Oil Co. No. 1 Peabody, NE cor. sec. 35-6s-2w. T.D. 5,961 ft.; D.P. stk.; recvd. 1,500 ft.

Marshall County

E. W. Hughes Drlg. Co. et al No. 1 Vititoe, C NE SE sec. 11-5s-4e. Drlg. L. 7,106 ft.

Stephens County

Coline Oil Co. No. 1 Johnson, C SW SE SW NE sec. 1-2n-8w. T.D. 10,000 ft.; 9,050 ft.; made several hd. flws., 37-grav. oil. S.I.O.

Tillman County

Smith No. 2 Hammell, NE NW NW sec. 6-5s-15w. T.D. 2,000 ft.; S.D.

KANSAS

Week Ending June 4 (Descriptions are East unless marked otherwise)

Barton County

Armer & Vernon No. 1 Seyfert, NW SW NE sec. 3-17-13w. T.D. 2,560 ft.; S.D.
Champlin Ref. Co. No. 1 Reeves, SW sec. 29-20-14. Arb. 3,637 ft.; S.S.O.; T.D. 3,656 ft.; D.&A.
Crown Pet. Corp. No. 1 Wolf, SE SW SE sec. 36-19-12w. U.R. at 2,130 ft.
R. E. Day et al No. 1 Felts, SE SE NE sec. 14-16-12w. S.D. 1,875 ft.
Kessler O. & G. No. 1 Bowman, SW NE sec. 22-20-16w. Drlg. 1,500 ft.
Price et al No. 1 Wondra, NW NE sec. 10-17-13w. T.D. 3,343 ft.; P.B. 3,342 ft.; p. 539 B.O.P.D., 20% wtr.
Sinclair Prairie Oil Co. No. 1 Frederick, SW SW SE sec. 16-16-11w. P.B. 3,333 ft.; swb. 44 B.O. and 170 B.W. in 6 hrs.; P.B. 3,331 ft.
Western Kansas O. & R. Co. and Republic Nat. Gas Co. No. 1 Linsner, SW SW SE sec. 3-17-13w. Arb. 3,362 ft.: T.D. 3,367 ft.; R.U.S.T.

Butler County

Bennett & Abels No. 1 Glass, SE SW NW sec. 14-25-3. T.D. 2,782 ft.; 12 gal. O.&S.W. in 12 hrs.; D.&A.
T. S. Dustin No. 1 Miley, SE NW NE sec. 17-27-5e. T.D. 2,008 ft.; S.G.; S.D.
Max Steinbuchel et al No. 1 Fox, NW SE NE sec. 25-26-3. T.D. 1,685 ft.

Chase County

T. D. Duffy No. 1 Leedy, NE NW NW sec. 26-22-9e. T.D. 2,487 ft.; S.D.

Coffey County

Barner & Leiker No. 1 Knapp, SE SW NW sec. 27-22-14. S.D. 555 ft.
Western Kans. O. & R. Co. No. 1 Knapp, SW SW NW sec. 27-22-14. Spd.

Cowley County

Hutchinson O. & G. Co. No. 1-A Ketchen, SW SE SE sec. 11-35-5. Drlg. 2,340 ft.
Palmer Oil Corp. No. 1 Houser, SE NW SW sec. 13-30-3e. S.D. 2,930 ft.
Smith et al No. 1 Wilson, SE SW NW sec. 9-33-6. S.O. at 3,096 ft.; 600 ft. F.I.H. in 2 days; T.D. 3,149 ft.; swbd. 6 B.O. and 6 B.W. P.H.

Dickinson County

Fred Franks et al No. 1 Huffman, NW NW sec. 11-13-1e. S.D. 1,177 ft.

Ellsworth County

Cities Service et al No. 2 Schroeder "A," CNL SW sec. 29-17-9w. Drlg. 1,200 ft.

Finney County

Atlantic Ref. Co. No. 1 Nunn, C SE NE sec. 27-21-34w. Shot at 4,637-53 ft.; C.O.

Ford County

Sinclair Prairie Oil Co. No. 1 Young, CSL NE sec. 34-27-21w. Viola 5,350 ft.; dolomite at 5,512 ft.; cd. to 5,570 ft.

Greenwood County

C. C. Whitaker et al No. 1 Bressner, NW SE sec. 8-26-13e. T.D. 1,498 ft.; 1,000,000 ft. gas est.

Jackson County

Haverback et al No. 1 Marble Bank, C NE NE sec. 26-9-14. Drlg. 2,230 ft.

Jewell County

Hollingsworth Bros. No. 1 Wolfe, NE SW SE sec. 14-4s-8w. S.D. 100 ft.; abd.

Lane County

Phillips Pet. Co. No. 1 Kees, C SE SE sec. 3-19-30w. T.D. 2,566 ft.; lost circ.
Valerius & Marshall No. 1 Schierecks, C SE sec. 8-18-30w. R.U.R.

Marion County

Johnson et al No. 1-A Miltz, SW SW SW sec. 24-17-4. Fsg. 1,130 ft.

Meade County

Barnett et al No. 1 Adams, NW SE sec. 22-34-30w. S.D. 69 ft.; abd.

Ness County

Schoeppel & Elmore No. 1 Moses, C SW NW sec. 10-18-25w. T.D. 4,353 ft.; S.O.

Ottawa County

Babcock Oil No. 1 Copeman, NW NW sec. 18-10-2w. Drlg. 94 ft.

Pawnee County

Kessler Oil & Gas No. 1 Dirks, NW NW NE sec. 14-20-16w. Cellar.

Pratt County

Atlantic et al No. 1 Berg, NE NW NW sec. 22-26-14w. Arb. 4,536 ft.; T.D. 4,562 ft.; no shows; D.&A.
Tidewater No. 1 Jarboe, C NL SE sec. 25-26-14w. Drlg. 2,890 ft.

Reno County

Carey et al No. 1 McPheeters, NE NW sec. 22-26-8w. T.D. 4,300 ft.; H.F.W.; D.&A.
L. E. Douglas et al No. 1 Durand SE SE SW sec. 3-23-5w. Drlg. 2,570 ft.

Rice County

Jones & Hinkle No. 1 Wesseler, SE SE NW sec. 34-18-10w. T.D. 3,260 ft.; D. &A.
Marylyn Oil Co. et al No. 1 Vincent, NW NW NE sec. 5-21-10w. Drlg. 2,800 ft.

Riley County

Coronado Oil et al No. 1 Parks, SE SE sec. 16-10-8. Drlg. 325 ft.

Rooks County

Carter Oil Co. No. 1 Whitford, NE NE SE sec. 12-7-17w. Sat. 2,934 ft.; drlg. 3,293 ft.
Duwe & Farris No. 1 Sutor, SW SW NE sec. 28-9-19w. Drlg. 3,095 ft.
Graham et al No. 1 Fike, SW cor. sec 9-9-17w. Drlg. by at 3,412 ft.
J. J. Hall No. 1 Kruse, SE NE sec. 3-10-16w. Drlg. 550 ft.
F. O. Haun No. 1 Gavenhorst, SE SE sec. 7-6-16w. M.I.M.
Producers Oil Co. No. 1 Ham, SW SW NW sec. 25-7-19w. T.D. 1,000 ft.; C.O.

Rush County

Phillips Pet. Co. No. 1 John Kees, C SE SE sec. 3-19-20w. T.D. 2,500 ft.; S.D. for csg.

Russell County

El Dorado Ref. et al No. 1 Ruby, NW NE sec. 1-15-13w. Drlg. 355 ft.
J. J. Hall No. 1 Landon, SW SE sec. 11-15-14w. Drlg. 2,780 ft.
S. L. Parks No. 1 Gorham, SW SW NE sec. 19-15-15w. T.D. 3,352 ft.; 2,800 ft. O.I.H.; Pot. 341 B.O.P.D.
Phillips Pet. Co. No. 1 Miller, C NW SW sec. 29-13-14w. Drlg. 2,386 ft.
R. H. Shields No. 1 Anschutz, SW SE sec. 2-14-13w. Drlg. 2,855 ft.
Smith & Unruh No. 1 Stielow, NW cor. sec. 32-11-14w. T.D. 2,552 ft.; S.D.
Twin Drlg. Co. No. 1 Koetkemeyer, SW SW SW sec. 12-15-12w. Drlg. 3,172 ft.
Web-Son O. & R. No. 1 Baxter, NW SE sec. 4-15-15w. Drlg. 2,410 ft.

Sedgwick County

D. M. Crowe et al No. 1 Murphy, SW SW SE sec. 34-29-1w. Rig.
Frank Hudson et al No. 1 Fulton, NE SE sec. 35-28-1e. U.R. at 2,248 ft.
Natl. Ref. No. 1 Trustee, SE NE sec. 8-27-2. Drlg. 390 ft.
Union O. & R. Co. et al No. 1 Howell, SW cor. sec. 6-29-1e. U.R. 2,843 ft.; to R.U.R.

Stafford County

Austin Drlg. Co. No. 1 Slade, NE NW sec. 35-25-12w. Drlg. 2,030 ft.
Carlock No. 1 Richardson, SE SE sec. 10-24-11w. Drlg. 3,090 ft.

Sumner County

Hapenney et al No. 1 Evers, SE SE NE sec. 27-31-2e. O.W.D.D.; T.D. 2,015 ft.; W.O.C.
Murphy et al No. 1 Tate, SE NW sec. 31-32-2e. Drlg. 3,495 ft.

Thomas County

Connelly et al No. 1 fee, NW SE SE sec. 4-10-35w. T.D. 132 ft.; S.D.

Woodson County

Cleveland Oil Co. et al No. 1 Fidelity, SE SE NE sec. 34-25-15. T.D. 1,436 ft.; cmtg. csg.; W.O.C.
W. C. Cohen et al No. 1 Pendlay, NW SW sec. 5-26-15. Drlg. 200 ft.
Hill & McClure No. 1 Kelley, NW SE SW sec. 22-26-14w. S.D. 765 ft.
Phil-Han Oil No. 1 Evans, NW SE sec. 21-23-15. Drlg. 710 ft.

ARKANSAS

Columbia County

Fohs Oil Co. No. 1 Phillips, C NW SW sec. 15-17-19. Loc.

Desha County

Columbia Fuel Corp. No. 1 V. Cross, SW cor. sec. 34-8s-3w, formerly abd. 4,915 ft.; P.B. 4,823 ft.; attempted D.S.T. 4,-816-23 ft.; seat gave away; W.O. 4,-823 ft.

Hempstead County

H. D. Easton et al No. 1 LaGrone, sec. 5-12-26. Drlg. rd. sdy. sh. 3,204 ft.

Lafayette County

Standard Oil Co. of La. No. 2 McKean, 660 ft. SW cor. SW SE sec. 7-16s-22w. Drlg. sh. 5,603 ft.

Little River County

Joe G. Straham et al No. 2 Dierks Lbr. Co. Top L. 2,425 ft.; S.D. 2,497 ft.

Lonoke County

J. F. Russell No. 1 Gunter, sec. 17-5n-10w. Drlg. 820 ft.

Miller County—Rodessa

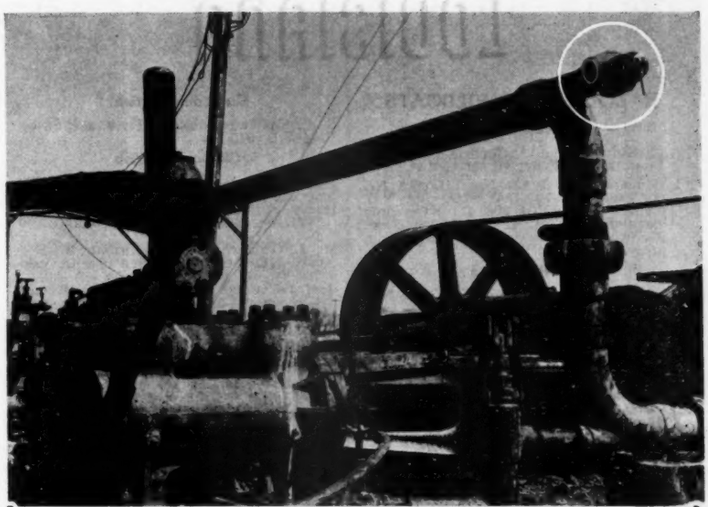
F. W. Burford No. 1 E. B. Mitchell, SE cor. SW SW sec. 2-20-28. Drlg. sh.&L. 3,690 ft.
F. W. Buford No. 2 Mitchell, 330 ft. NW cor. NE NW sec. 11-20-28. R.U.
F. F. Earles No. 1 General American Life Ins. Co., sec. 20-14-26. S.D. 1,-232 ft.
Sam Killingsworth No. 1 Greer, sec. 11-20-28. Comp.; 15 B.P.H.; 1-in. ck.; C.P. 600 lbs.; sat. L. 6,128-53 ft.; 5-in. csg. at 6,128 ft.; T.D. 6,157 ft.
Kroll & Travis No. 2 Dickinson, 330 ft. NW cor. SE NW sec. 11-20-28. Drlg. anhy.&sh. 5,660 ft.
Red Iron Drlg. Co. No. 1 Mitchell, sec. 2-20-28. Drlg. anhy.&sh. 5,900 ft.
Texarkana Drlg. Co. No. 1 Capps, sec. 10-20-28. Rmg. 6,201 ft.
Texas Canadian Oil Corp. No. 2 Thomas, NE cor. NW SE sec. 12-20-28. Reperf. 6,108-16 ft., 6,125-32 ft., and 6,146-53 ft.; swbd. approx. 25 bbls. oil; treated with 3,000 gal.; T.D. 6,156 ft.; comp; 10 B.P.H.; heading; open tbg.; C.P. 500 lbs.

Nevada County

B. L. Webb No. 1 Boswell, sec. 5-14-20. Set 10-in. csg. 63 ft.
Bruce E. Wallace No. 2 Haynie, SE cor. SE NE sec. 5-14-21. Sdy. sh. 1,194-1,-204 ft.; tstd. mud, S.W. and oil 1,198-1,214 ft.; 30 min.: W.O.; T.D. 1,214 ft. set 6-in. csg. 1,198 ft.; swbd. est. 10 bbls. oil; W.O.S.R. 1,214 ft.

Pike County

Bruce E. Wallace No. 1 Tilyeu, sec. 26-8s-24w. S.D. 330 ft.



The Symbol of Safety in
OIL FIELDS EVERYWHERE

The one sure way of knowing that your pump is safe from the hazards of excess pressure is to provide that pump with SHEAR-RELIEF Valve protection. This valve relieves pressure at a set point by shearing a common nail. The valve name-plate lists the shear stress of each nail size, and includes a nail gauge to prevent mistaking sizes. The sheared nail is the extent of your damage when the valve opens.

Above: 2" high pressure type for slush pumps.

Right: 2" low pressure type for hydraulic service up to 1,000 pounds per square inch.

FLUID-PISTON SLUSH PUMPS
ABERCROMBIE PUMP CO.
GULF BLDG. HOUSTON TEX.

SHEAR-RELIEF VALVE

Pulaski County

Coker Oil Corp. No. 1 Stone, sec. 36-3n-11w. Set 12½-in. csg. 108 ft.

A. L. Kitselman No. 2 A. L. Kitselman, Jr., SE SE SW sec. 2-1s-13e. Drlg. hd. bik. slate 2,900 ft.

Union County—Schuler

Alice Sydney Oil Co. No. 4 Powledge, SW cor. NW SE sec. 7-18-17. Drlg. 1,-667 ft.

Atlantic Ref. Co. No. 1 Dumas, NW cor. NE NW sec. 21-18-17. Set csg. 2,285 ft.; W.O.C.

E. M. Jones No. 3-A Murphy Ld. Co., NE cor. SE NE sec. 19-18-17. Drlg. 1,840 ft.

E. M. Jones No. 1 Rogers, SW SW sec. 16-18-17. Drlg. rd.&gr. sh. 6,074 ft.

Lion Oil Ref. Co. No. 1 Clarence, SW cor. Lot 7, SW sec. 7-18-17. Drlg. 700 ft.

Lion Oil Ref. Co. No. 1 Marcus, sec. 18-18-17. Set 7-in. csg. 7,630 ft.; W.O.C.

Lion Oil Ref. Co. No. 1 Marvin, NE cor. Lot 7, SW sec. 7-18-17. Set csg. 2,313 ft.; W.O.C.

Lion Oil Ref. Co. No. 2 Mayfield, Lot 2 sec. 18-18-17. Set 7-in. csg. 7,633 ft.; W.O.C.; T.D. 7,643 ft.

Lion Oil Ref. Co. No. 3 Mayfield, sec. 18-18-17. Drlg. rd. sdy. sh. 7,223 ft.

Lion Oil Ref. Co. No. 4 Mayfield, C Lot 3, NW sec. 18-18-17. Set csg. 2,300 ft.; W.O.C.

Lion Oil Ref. Co. No. 6-B Edna Morgan, sec. 18-18-17. Drlg. rd.&gr. sh. 5,099 ft.

Lion Oil Ref. Co. No. 1 Nelson, sec. 18-18-17. Drlg. sdy. sh. 6,915 ft.

Marine Oil Co. No. 1 Calloway, SE cor. Lot 4, NW sec. 18-18-17. R.U.

Marine Oil Co. No. 5 fee, sec. 17-18-17. Set 7-in. csg. 7,800 ft.; T.D. 8,328 ft.; perf. 7,526-34 ft., 7,540-50 ft. and 7,-550-60 ft.; comp.; 1,422 B.P.D.; T.P. 700 lbs.

Marine Oil Co. No. 6 fee, sec. 17-18-17 7-in. 7,584 ft.; perf. 7,540-75 ft.; comp.; 827 B.P.D.; ¼-in. ck.; T.P. 600 lbs.; C.P. 100 lbs.; T.D. 7,615 ft.

Phillips Pet. Co. No. 3 Justiss, Lot 6, sec. 18-18-17. Top Jones sd. 7,506 ft.; top L. 7,609 ft.; cd. 60 ft. sat. L. in Reynolds L.; set 7-in. csg. 7,800 ft.; T.D. 8,328 ft.; perf. 7,646-53 ft.; cmtd. and perf. 7,646-55 ft.; comp.; 560 B.P.D.; 24/64-in. ck.; T.P. 900 lbs.; C.P. 500 lbs.

Phillips Pet. Co. No. 5 Marine Oil Co., sec. 20-18-12. Set 7-in. csg. 7,650 ft.; drld. to 7,650 ft.; comp.; 600 B.P.D.; T.P. 600 lbs.; C.P. 300 lbs.

Phillips Pet. Co. No. 3 Marks, C Lot 2, Drlg. rd. sdy. sh. 7,290 ft.

Union County—Other

Ark. Southern Oil Corp. No. 3-A Simmons, sec. 15-18-13. Rmg. to set csg. 2,303 ft.

J. R. Lockhart No. 1 Raulston, sec. 12 17-14. Set 10-in. csg. 106 ft.; T.D. 107 ft.

Joe Modisette et al No. 1 Union Sawmill Co., sec. 8-18-12. R.U.

Roberts & Murphy No. 1 Justiss, 330 ft. SE cor. Lot 6, SW sec. 7-18-17. R.U.

W. D. Wingfield, Tr. No. 2 Kidd Est., SE cor. NW SW sec. 15-18-13. Sd. S.D. 2,257-2,300 ft.; set 6-in. csg. 2,250 ft.; T.D. 2,300 ft.; W.O.S.R.

LOUISIANA

N. LOUISIANA WILDCATS

Blenville County

Gulf Ref. Co. No. 1 Goodpine, sec. 25-14-8. Drlg. hd. gr. sh. 10,150 ft.

Producers O. & G. Co. No. 1 Locke, NE cor. sec. 9-15-10. O.W.W.O.; old T.D. 2,960 ft.; rmd. to 800 ft.; S.G.; hole cleaned out; sat. L. 2,952-53 ft.; set 8⅝-in. csg. 2,947 ft.; tsted dry; drlg. anhy. 4,585 ft.

Bossier Parish

L. W. Dennis No. 1 Roos, SW NW NW sec. 13-19-12. D.&A. 864 ft.

C. H. French No. 3 Larkin, SW cor. NW SW sec. 14-19-11. Set 6-in. csg. 364 ft.; W.O.C.; comp.; pmpg. 10 B.P.D.; T.D. 392 ft.

C. H. French No. 4 Larkin, SW cor. NW SW sec. 14-19-11. Set 6-in. csg. 367 ft. comp.; 7 B.P.D.; pmpg.; T.D. 400 ft.

Premier Inv. Co. No. 1 McDade, SE SW NE sec. 28-19-11. Rmg. 2,273 ft.

Sloan, Lloyd et al No. 1 Sherrill, sec 12-19-12. T.D. 780 ft.; set 5½-n. 778 ft.; trtd. with 1,000 gal. acd.; tstd. dry; W.O.

Triangle Drlg. Co. No. 4-A Herold, NE cor. NE SW sec. 13-17-12. Comp.; 540 B.P.D.; ½-in. ck.; T.D. 3,140 ft.

Triangle Drlg. Co. No. 4 Thigpen-Herold, 665 ft. S line, 667 ft. W line, NE SE sec. 13-17-12. Set 5½-in. csg. 3,108 ft.; T.D. 3,136 ft.

Union Prod. Co. No. 3-C Skannel, NE cor. sec. 13-17-12. D.S.T. 3,005-21 ft. tstd. 60 ft. mud cut with oil; 520 ft. oil; 420 ft. S.W. in 15 min.; O. sd. 3,015-21 ft.; set 5½-in. csg. 3,108 ft.; swbg.

Union Prod. Co. No. 2 Thigpen-Herold, sec. 13-17-12. T.D. 3,162 ft.; D.S.T. 2,-980-3,030 ft.; rec. 400 ft. oil and 120 ft. mud and oil in 21 min.; set 7-in. csg. 3,109 ft.; P.B. 3,132 ft.; treated 2,000 gal. acd.; no ga.; S.I.; W.O. stg.

Caddo Parish

R. E. Allison No. 1 Ellerbee et al., NW cor. sec. 27-18-14. Drlg. 765 ft.

Carroll et al No. 1 Hart, NW sec. 26-21-16. R.U.

L. I. Davis No. 4 Stiles, sec. 7-20-15. Set 6-in. at 1,016 ft.; W.O.S.R.; T.D. 1,028 ft.

Driscoll No. 1 Muslow, SE cor. NE NW sec. 4-20-15. R.U. to drill in at 2,197 ft.

J. T. Driscoll No. 4 Self, NE SE sec. 10-20-15. R.U.

W. D. Flynn No. 4 Natalie, SE cor. sec. 10-21-16. Set 7-in. at 998 ft.; W.O.; T.D. 1,027 ft.

A. R. Hancock No. 3 Standard fee, SE cor. sec. 12-12-16. Set 7-in. csg. 1,025 ft.; T.D. 1,053 ft.; rng. sd. pmp.

Magnolia Pet. Co. No. 26 Dillon, SW cor. E½ NE sec. 23-21-15. Set 7-in. csg. 1,461 ft.; tstg. 1,600 ft.

J. F. Mitchell No. 2 Muslow, sec. 31-21-15. Set 10-in. csg. 60 ft.

Petroleum Heat & Power Co. No. 1 Wemple, NW cor. sec. 14-20-15. Set 6-in. csg. 2,185 ft.; P.B. 2,200 ft.; old T.D. 2,605 ft.

Triple M Oil Co. No. 1 Boisseau, sec. 34-21-16. S.D.; W.O. 1,925 ft.

G. H. Vaughn No. 1 Stiles, sec. 21-21-16. Set 6-in. csg. 1,016 ft.; T.D. 1,024 ft.

Nat Weisman No. 1 Stiles, NE cor. sec. 27-21-16. Set 6⅝-in. csg. 1,032 ft.; T.D. 1,037 ft.

Caldwell Parish

E. T. Oakes et al No. 1 Kyles, sec. 18-11-3e. Set 12-in. csg. 467 ft.; S.D.

Catahoula Parish

G. C. Foster et al No. 1 Peck, sec. 38-10-8e. S.D. 645 ft.

Claiborne Parish

Harry Fotiades No. 2 King, C NE NW sec. 11-20-5. Drlg. L. 4,978 ft.

Harry Fotiades No. 1 Whitman, C NE NW sec. 2-20-5. Fsg. drill collar 5,190 ft.

M. J. Grogan No. 1 Whitman, C E½ NW NE sec. 2-20-15. Set 10¾-in. csg. 793 ft.

Gulf Oil Corp. No. 4 Patton, SW cor. NW sec. 11-20-5. Drlg. 3,771 ft.

Hollifield & McFarland No. 1 Kilgore, C SE NE sec. 12-20-5. R.U.

Magnolia Pet. Co. No. 2 Lloyd, sec. 2-20-5. Drlg. sh.&L. 5,215 ft.

Magnolia Pet. Co. No. 3 Lloyd, C SW SE sec. 2-24-5. Drlg. sh. 1,520 ft.

Morelock & Bevil No. 2 Kilgore, C NW NE sec. 12-20-5. Drlg. sd.&L. 4,680 ft.

Oakes et al No. 1 Kilgore, NE cor. SE sec. 28-21-15. D.S.T. 4,188-4,225 ft.; tstd. dry in 5 min.; set 5¾-in. csg. 5,290 ft.; T.D. 5,313 ft.; swbd. dry; arng. to acdz.

E. T. Oakes et al No. 1 H. W. Patton, C NW SW sec. 12-20-5. Drlg. 2,425 ft.

R. P. Oden No. 1 Henry, C NE NE sec. 29-21-4. Drlg. anhy. 3,860 ft.

Sells Pet. Co. No. 2-A Patton, C NE NE sec. 11-20-5. Set 10¾-in. csg. 820 ft.

Skelly Oil Co. No. 1 Enlee, sec. 28-21-4. Set 5½-in. csg. 5,230 ft.; perf. 5,-213-20 ft.; tstg. 5,239 ft.

Sklar Oil Corp. No. 2 Kilgore, C NW SW sec. 11-20-5. Drlg. L. 4,250 ft.

Sloan & Zook Co. No. 1 Patton, C NW SW sec. 7-20-5. Drlg. L. 4,230 ft.

Texas Canadian Oil Co. No. 1 Fowler, sec. 32-21-4. Sat. L. 5,239-43 ft. and 5,248-51 ft.; set 5½-in. csg. 5,217 ft.; T.D. 5,255 ft.; tstg.

Texas Co. No. 1 Tippett, sec. 33-21-4. Sat. L. 5,303-10 ft.; set 5-in. csg. 5,-293 ft.; tsg. 5,318 ft.; W.O.S.R.

Union Prod. Co. No. 2 Brownfield, sec. 5-19-5. T.D. 10,759 ft.; hole off 5 deg. P.B. 10,561 ft.; cmtd. jnk. to sdtrk.; T.D. 10,695 ft.

G. H. Vaughn No. 1 English, C NW SW sec. 30-21-4. Drlg. anhy.&sh. 4,000 ft.

Weaver Oil Corp. No. 2 Edmonds, sec. 16-20-5. T.D. 5,851 ft.; arng. to abd.

Weaver-Perry Oil Co. No. 1 Patton Est., sec. 11-20-5. Sat. L. 5,269-72 and 5,274-77 and 5,282-92 ft.; 5½-in. csg. 5,268 ft.; comp.; 300 B.P.D.; ½-in. ck.; T.P. 65 lbs.; T.D. 5,293 ft.

Concordia Parish

Morrison & Co. No. 1 Winston, sec. 43-7-9e. Drlg. 1,980 ft.

De Soto Parish

S. S. Alexander No. 1 Stoll, NE cor. sec. 5-12-16. O.W.W.O.; old T.D. 6,002 ft.; set short string 5½-in. csg. 5,479 ft reperf. 5,420-40 ft.; tstg. S.W. 5,440 ft. cmtd. all perf. above 5,180 ft.; swbg.; S.W.; S.D.

Coleman et al No. 1 Franklin, NW cor. NE SE sec. 29-12-11. Set 10-in. csg. 120 ft.

Hunter Co. No. 1 Parker, sec. 26-12-16. Set 9⅝-in. csg. 1,380 ft.; well blew out at 2,912 ft.; cored strks. oolitic L. show gas 5,024-82 ft.; brkn. g. sd. 4,-953-5,085 ft.; set 5½-in. csg. 5,138 ft.; perf. 4,953-5,029 ft.; tstg.

La. Seaboard Oil Ref. Co. No. 1 Lawrence, sec. 36-12-14. Set 8¼-in. csg. 2,031 ft.; tstd. dry; S.D. 2,884 ft.; W.O.

Pet. Heat & Power Co. No. 1-B Kavanaugh, sec. 12-11-12. O. sd. 2,804-05 and 2,812-16 ft.; set 5-in. csg. 2,817 ft.; perf. 2,800-14 ft.; tstg.

Petroleum Heat & Power Co. No. 2 Kavanaugh, NE cor. NW SW sec. 7-11-11. Drlg. sh. 2,734 ft.

Pet. Heat & Power Co. No. 1 Matthews, sec. 29-12-11. Tstd. dry 3,950 ft.; P.B. 2,400 ft.; D.&A.

Pet. Heat & Power Co. No. 1 Rives, sec. 20-12-11. Drlg. sh.&L. 3,341 ft.

Pet. Heat & Power No. 1 Williams, W R., NW NE sec. 13-11-12. (Cor.); D.S.T. 2,800-18 ft.; S.G.; 7-in. csg. set 2,800 ft.; tstg. 2,827 ft.; W.O.; T.D. 2,827 ft.; tstd. S.G.; arng. test 2,827 ft.

Texas Co. No. 2 White, SW NE sec. 24-12-12. Set 4½-in. csg. 835 ft.; S.D. 890 ft.

Franklin Parish

Southern Star Pet. Co. No. 3 Grayson, sec. 36-12-6e. S.D. 1,900 ft.

Grant Parish

R. D. Bevil et al No. 3 Holmes, SW SW sec. 17-9-1e. Set 6-in. csg. 1,604 ft.; T.D. 1,608 ft.

K-M Pet. Co. No. 1 Holmes, sec. 20-9-1e. S.D. 850 ft.

C. L. Thompson No. 1 McNeely Est., NE cor. sec. 10-6-3w. Drlg. sdy. sh. 3,800 ft.

Lincoln Parish

Harry Fotiades No. 1 Henry, C NW NE sec. 5-20-4. Drlg. L.&sh. 4,500 ft.

O K Oil Co. No. 1 Lowery, 1,980 ft. N L, 635 ft. W L, sec. 7-20-4. Set 10¾-in. csg. 782 ft.

Natchitoches Parish

Roy Raines et al No. 1 Prudential Life Ins. Co., sec. 22-10-9w. Set 12-in. csg. 70 ft.; T.D. 1,250 ft.; fsg.

W. P. Ryan et al No. 1 Lambert, sec. 4-8-9. Top Blssm. sd. 2,952 ft.; drlg. chk. rk. 3,950 ft.

Red River Parish

R. M. Hutchins No. 1 Sample, sec. 11-14-11. Tstg. 1,781 ft.

Monte Oil Co. No. 1 McClelland, NW NW sec. 24-13-11. D.S.T. 967-74 ft. S.G.; D.S.T. 1,570-98 ft.; small S.G.; set 6-in. csg. 2,490 ft.; T.D. 2,490 ft.

Sabine Parish

Hare et al No. 1 Stoby, SW cor. SE sec. 10-8-12. R.U.

Hunter Co. No. 3 Bowman-Hicks, sec. 15-7-13. Set 6-in. 2,125 ft.

W. L. McClanahan No. 1 Frost Lbr. Co., sec. 22-9-13. Drlg. sh. 1,315 ft.

Major Oil Co. No. 3 Henry, NE cor. NW SW sec. 12-7-13. Drlg. 2,335 ft.

F. W. Martin Drlg. Co. No. 1 Sabine Lbr. Co., C W½ NE NE sec. 26-7-14. Drlg. 2,216 ft.

H. N. Morris No. 1 Irving & Bishop, C NW NW sec. 18-7-12. Recmtd. 6-in. csg.; T.D. 2,495 ft.; comp.; 45 B.P.D.

Plymouth Oil Corp. No. 1 Kezerle, sec. 3-7-13. Tstd. S.W. 2,494 ft.; S.D.

W. L. Posey No. 1-A Ramirez, sec. 12-7-13. Set 6-in. at 2,147 ft.; arng. test 2,535 ft.

Albert Reich No. 1 Giaque, 330 ft. NE cor. SE NE sec. 27-7-14. R.U.

Republic Gas Co. No. 1 Whitney Corp., sec. 8-9-13. S.D. hd. sh.&strks. L. 8,-929 ft.

J. J. Watson No. 1 Sabine, sec. 12-7-13. Set 6-in. csg. 2,145 ft.; W.O.S.R. 2,510 ft.

Lee Whitehurst No. 1 Bowman-Hicks Lbr. Co., C W½ SE SE sec. 14-7-14. R.U.

Lee Whitehurst No. 6 Frost Lbr. Co., sec. 29-9-13. Set 6⅝-in. csg. 1,589 ft.; trtd. with 2,000 gal. acd.; comp.; pmpg. 35 B.P.D. and 200 bbls. S.W.; T.D. 2,068 ft.

Tensas Parish

H. V. Schumacker No. 4 Mount Plantation, sec. 39-11-12e. S.D. 2,410 ft.

Union Parish

Standard Oil Co. of La. No. 1 Frost Lbr., sec. 14-21-1e. Cg. L. 9,637 ft.

Webster Parish

S. W. L. Backus No. 4 Pardee, sec. 3-22-11. D.S.T. 2,725-34 ft.; rec. 4 jts. oil and mud; rng. csg.; T.D. 2,734 ft.

Fohs Oil Co. No. 1 Crichton, sec. 33-21-10. Drlg. r.b. 7,714 ft.

Hunt Oil Co. No. 6 Babb, C NE SW sec. 14-21-10. Set 7-in. 8,488 ft.; T.D. 8,505 ft.; comp.; 15 B.P.H. dist.; ¼-in. ck.; est. 2,000,000 ft. gas; C.P. 2,200 lbs.; T.P. 2,500 lbs.; perf. 8,370-90 ft.

Hunt Oil Co. No. 7 Babb, C NW SE sec. 14-21-10. Poor Holloway sd. 5,557-61 ft. and 5,582-86 ft.; set 9⅝-in. csg. 5,-750 ft.; tstd. dry 6,155 ft.; swbg. 12 B.P.D.; T.D. 5,800 ft.; will blow in the gas.

Hunt Oil Co. No. 1 Bodcaw, C SW NE sec. 33-21-10. Set 16-in. csg. 617 ft.

Hunt Oil Co. No. 9 Davis, sec. 14-21-10. Drlg. L.&sh. 5,765 ft.

Hunt Oil Co. No. 2 Bodcaw, C NE SE sec. 33-21-10. R.U.

Hunt Oil Co. No. 1 Davis, 660 ft. NE cor. sec. 23-21-10. Drlg. sh. 287 ft.

Hunt Oil Co. No. 20 Hope, C NE NW sec. 24-21-10. R.U.

Hunt Oil Co. and Ray Drlg. Co. No. 2 Bodcaw, C NW NE sec. 33-21-10. Drlg. L.&sh. 5,015 ft.

Hunt Oil Co. No. 3 Webb, C NW SW sec. 13-21-10. Set 7-in. csg. 5,956 ft.; T. Tr. Pk. 5,647 ft.; Holloway sd. 5,783-5,805 ft.; comp.; 41 B.P.H.; 24/64-in. ck.; T.P. 900 lbs.; C.P. 250 lbs.; T.D. 6,155 ft.

Magnolia Pet. Co. No. 1 Crichton Unit, sec. 33-21-10. Drlg. sd.&sh. 5,595 ft.

Magnolia Pet. Co. No. 3 Crichton, 795 ft. N line, 763 ft. W line, sec. 33-21-10. Drlg. anhy. & sh. 4,650 ft.

Magnolia Pet. Co. and Ray Drlg. Co. No. 1 Stewart-Crichton, sec. 33-21-10. S.D. 6,201 ft.; W.O.

Magnolia Pet. Co. No. 1 Robbins Unit, sec. 21-21-10. T.D. 6,616 ft.; set 9⅝-in. csg. 5,848 ft.

Magnolia Pet. Co. No. 1 Sexton Unit, NW SE sec. 32-23-9. Cd. Bodcaw sd.; no show; cd. sd. 8,293-8,310 ft.; gas odor; slight show gas and dist.; cg. hd. sdy. L. 8,599 ft.; ran Schlumberger 8,521 ft.; cd. sd. 8,899-8,906 ft.; gas odor; sd. at 9,007 ft.; dist. odor; T.D. 10,462 ft.; set 7-in. csg. 9,464 ft.; perf. 8,990-9,-010 ft.; comp.; 14 B.P.H. dist. and est. 2,000,000 ft. gas; 45/64-in. ck.

Midstates Oil Corp. No. 1 Welori Lbr. Co., C NW NW sec. 3-20-10. Top Tr. Pk. 6,029 ft.; no Holloway sd.; set 9⅝-in. csg. 6,121 ft.; drlg. sh.&sd. 7,-909 ft.

Morgan et al No. 1-A Hope, C NW NW sec. 25-21-10. T. Bodcaw 8,115 ft.; perf. csg. 8,095-8,150 ft.; set 7-in. csg. 8,196 ft.; tstg. 8,216 ft.

Ohio Oil Co. No. 3 Bodcaw, Acct. 4, sec. 28-21-10. Bodcaw sd. 8,216-53 ft.; comp. 450 B.P.D.; ⅝-in. ck.; est. 3,000,000 ft. gas; T.P. 2,400 lbs.; C.P. 2,500 lbs.; T.D. 8,288 ft.

Ohio Oil Co. No. 50 Bodcaw, Acct. 3, sec. 34-21-10. Sat. Holloway sd. 5,724-55 ft.; set 5½-in. csg. 5,725 ft.; T.D. 5,760 ft.; comp.; 701 B.P.D.; ⅝-in. ck.; T.P. 400 lbs.; C.P. 800 lbs.; T.D. 5,-760 ft.

Ohio Oil Co. No. 4 Cox, Acct. 2, C SW sec. 15-21-10. Drlg. sh.&L. 4,735 ft.

Ohio Oil Co. No. 1 Gray, NW cor. SE NW sec. 28-21-10. Drlg. sdy. sh. 7,936 ft.

Ohio Oil Co. No. 24 Gray, NE cor. sec. 35-21-10. Drlg. sdy. sh. 8,142 ft.

Ohio Oil Co. No. 1 A. H. Gray, Acct. 3, sec. 26-21-10. Drlg. sdy. sh. 7,046 ft.

Ohio Oil Co. No. 4 Holloway, sec. 23-21-10. Old gas well; old T.D. 4,537 ft.; arng. to deepen.

Ohio Oil Co. No. 1 Jackson, sec. 27-21-10. No Holloway sd.; set 9⅝-in. csg. 5,600 ft.; drlg. sd. 7,592 ft.

Ohio Oil Co. No. 1 Sandlin, sec. 27-21-10. No Holloway sd.; set 9⅝-in. csg. 5,574 ft.; drlg. sh. 7,768 ft.

Ohio Oil Co. and Union Prod. Co. No. 1 Tillman-Gleason, sec. 28-21-10. Set 9⅝-in. csg. 5,671 ft.; T.D. 5,675 ft.

Oliphant No. 3 Banks, sec. 34-21-10. Top Tr. Pk. 5,797 ft.; Bodcaw sd. 8,324-75 ft.; set 7-in. csg. 8,320 ft.; T.D. 8,395 ft.

A. G. Oliphant No. 2 Hodges, C NW SE sec. 34-21-10. 9⅝-in. csg. 5,689 ft.; tstd. dry 5,859 ft.; drlg. sdy. sh. 7,-164 ft.

A. G. Oliphant No. 1 Stewart, sec. 33-21-10. Set 7-in. 8,461 ft.; T.D. 8,532 ft. tstg. 8,532 ft.

Stanolind O. & G. Co. No. 1 Pardee Co., SW NE sec. 36-21-10. "D" stringer 8,473-98 ft.; Bodcaw sd. 8,565 ft.; cg. shly. sd. 8,606 ft., set 5½-in. csg. 8,-607 ft.; T.D. 8,642 ft.

Union Prod. Co. No. 1 Josey, sec. 27-21-10. Set 9⅝-in. csg. 5,780 ft.; T.D. 6,-100 ft.

SOUTH LOUISIANA FIELDS

Abbeville—Vermilion Parish

Continental Oil Co. No. 1 Franciol, sec. 67-12s-3e. R.U.

Continental Oil Co. No. 1 Hebert, sec. 67-12s-3e. 10¾-in. csg. 1,510 ft.; T.D. 7,448 ft.; D.S. stk.; fsg.; P.B. 7,301 ft.; to sdtrk.; T.D. 9,501 ft.; P.B. 8,100 ft. 5¾-in. csg. 7,875 ft.; fsg.

Continental Oil Co. No. 1 Motty, sec. 67-12s-3e. T.D. 8,242 ft.; P.B. 6,460 ft.; 7-in. csg. 6,460 ft.; perf. csg. 6,424-28 ft.; I.P. 565 B.P.D.; 5/32-in. ck.

Anse La Butte—St. Martin Parish

Butte Oil Co. No. 2 Billeaud, sec. 117-9s-5e. S.D. 50 ft.

Paul Fly et al No. 1 Moresi, sec. 118-9s-5e. T.D. 1,143 ft.; run 7-in. csg.

Bateman Lake—St. Mary Parish

Texas Co. No. 1 Wax Bayou, sec. 21-16s-12e. R.U.

Baton Rouge—East Baton Rouge Parish

Wm. Helis No. 2 Duplantier, sec. 65-7s-1w. Drlg. sd.&gvl. 1,040 ft.

Wm. Helis No. 1 Harry Nelson, sec. 36-7s-1w. Drlg. sh. 2,020 ft.

Bay St. Elaine—Terrebonne Parish

F. L. LeBlanc No. 2 Wurzlow, sec. 17-22s-18e. S.D. 816 ft.

Texas Co. No. 17 State, sec. 18-22s-18e. T.D. 6,000 ft.; abd.

Bayou Blue—Iberville Parish

Humble O. & R. Co. No. 6 Wilbert Sons Lbr. Co., sec. 66-9s-11e. 7-in. csg. 6,-982 ft.; T.D. 7,011 ft.; swbg.

Bayou De Allemands—St. Charles Parish

Amerada Pet. Corp. No. 1 Gheens Realty Co., sec. 56-15s-20e. T.D. 7,010 ft.; P.B. 6,398 ft.; sdtrkd.; D.S. stk. at 6,-502 ft.; P.B. 3,000 ft.; prep. to sdtrk. at 3,162 ft.; drlg. sh. 4,889 ft.

Amerada Pet. Corp. No. 4 State, sec. 13-15s-20e. 13⅜-in. csg. 1,976 ft.; drlg. sd. 7,991 ft.

Amerada Pet. Corp. No. 2 St. Charles Ld. Co., sec. 13-15s-20e. Drlg. sdy. sh. 780 ft.

Caillou Island—Terrebonne Parish

Texas Co. No. 29 State, sec. 17-23s-20e. Loc.

Cameron Meadows—Cameron

Burton-Sutton Oil Co. No. 23 School Ld., sec. 16-14s-13w. T.D. 5,786 ft.; 7-in. csg. 5,323 ft.; tstd. S.W.; P.B. to sidetrack; T.D. 2,959 ft.; flwd. oil and went dead; R.U. to pmp.
Burton-Sutton Oil Co. No. 24 School Ld., sec. 16-14s-13w. R.U.
Burton-Sutton Oil Co. No. 25 School Ld., sec. 16-14s-13w. Drlg. sh. 5,012 ft.
Magnolia Pet. Co. No. 22 Cameron Meadows, sec. 21-14s-13w. T.D. 4,242 ft.; 9⅝-in. csg. 4,242 ft.; perf. csg. 4,221-30 ft.; flwg. P.L. oil; went dead; P.B. 4,232 ft.; drld. out to T.D. 4,321 ft.; perf. csg. 4,307-16 ft.; swbd. S.W.

Choneyville—Rapides Parish

Amerada Pet. Corp. No. 5 Weil Ld. Co., sec. 53-1s-2e. T.D. 5,751 ft.; rmg.
Texas Co. No. 3 Weil Ld. Co., sec. 53-1s-2e. Drlg. sh.&sd. 7,372 ft.

Charenton—St. Mary Parish

Commerce Oil Co. No. 1 Dalph Parro, sec. 31-13s-10e. Cd. oil sd. 6,658-95 ft.; 9⅝-in. csg. 6,695 ft.; T.D. 8,000 ft.; P.B. 6,695 ft.
Pan American Prod. Co. No. 6 Laws, sec. 25-13s-9e. T.D. 2,605 ft.; 7-in. csg. 2,621 ft.; I.P. 413 B.P.D.; ¼-in. ck.
Pan American Prod. Co. No. 8 Laws Realty, sec. 25-13s-9e. T.D. 2,651 ft.; P.B. 2,621 ft.; W.O.C.

Choctaw—Iberville Parish

La. Crusader Oil Co. No. 2 Schwing, sec. 29-8s-11e. Cd. oil sd. 8,250-56 ft.; T.D. 8,260 ft.; 6⅝-in. csg. 8,240 ft.; flwg. 30 bbls. fluid per hr.; ¼-in. ck.; 12% wash wtr.; grav. 37.4.

Creole—Cameron Parish

Superior Oil Co.-Pure Oil Co. No. 2 State, Gulf of Mexico. Drlg. sh. 1,744 ft.

Darrow—Ascension Parish

Darrow Oil Co. No. 1 Dennis, sec. 68-10s-2e. T.D. 2,150 ft.; S.D.
Humble O. & R. Co. No. 18 Community, sec. 30-10s-2e. T.D. 6,958 ft.; well tried to blow out; circulating.
Kiva Oil Co. No. 1 Duplessis, sec. 69-10s-2w. S.D. 2,523 ft.

Dog Lake—Terrebonne Parish

Texas Co. No. 21 State, sec. 5-22s-16e. T.D. 7,174 ft.; P.B. 5,490 ft.; sdtrkd.; T.D. 6,882 ft.; 7⅝-in. csg. 6,871 ft.; perf. csg. 6,818-28 ft.; made sqz. job; drld. out to 6,882 ft.; tstg.

Four Isle—Terrebonne Parish

Texas Co. No. 19 State-Lake, sec. 17-23s-18e. T.D. 6,315 ft.; D.S. stk.; sidetracked at 4,049 ft.; drlg. sh. 5,344 ft.

Gibson—Terrebonne Parish

Shell Pet. Corp. No. 1 Kuntz, sec. 40-17s-15e. R.U.
Shell Pet. Corp. No. 6 Pellican, sec. 20-17s-15e. Drlg. sh. 180 ft.

Fausse Point—Iberia Parish

Texas Co. No. 4 State, sec. 35-11s-8e. 18⅝-in. csg. 90 ft.; top sd. 7,912 ft.; top salt 6,595 ft.; T.D. 9,246 ft.; 7⅝-in. csg. 9,236 ft.; T.D. 9,435 ft.; 5½-in. csg. 9,345 ft.; perf. csg. 9,251-61 ft. made sqz. job; P. B. 9,261 ft.; perf. csg. 7,910-35 ft.; tstg.

Garden Island—Plaquemines Parish

Texas Co. No. 29 State, sec. 38-23s-33e. Cg. sdy. sh. 4,631 ft.

Hackberry—Cameron Parish

W. T. Burton No. 1 Duhon, sec. 29-12s-10w. R.U.
W. T. Burton No. 1 F. Lacy, sec. 22-12s-10w. Drlg. sh. 3,227 ft.
Gulf Oil Corp. No. 1 Noble, sec. 22-12s-10w. Drk.
Stanolind O. & G. Co. No. 8 Carter & Sweeney, sec. 22-12s-10w. R.U.
Stanolind O. & G. Co. No. 10 Carter & Sweeney, sec. 22-12s-10w. R.U. (cor.).
Stanolind O. & G. Co. No. 1 Kaugh, sec. 28-12s-10w. Drk.
Superior Oil Co. No. 2 Benson, sec. 30-12s-10w. Drlg. sh. 3,555 ft.
Sutton Oil Co. No. 2 Ellender, sec. 22-12s-10w. T.D. 3,267 ft.; run csg.
Texas Co. No. 24-B State, sec. 12s-9w. T.D. 8,052 ft.; blew out; stk. D.S.; hole cleaned out to 7,659 ft.; P.B. 6,578 ft.; W.O.C.
Union Sulphur Co. No. 1 Doiron, sec. 37-12s-10w. 7-in. csg. 4,876 ft.; T.D. 5,940 ft.; S.T.; T.D. 5,023 ft.; P.B. 5,000 ft.; drlg. in sdtrkd. hole, sh. 5,943 ft.

Horseshoe Bayou—St. Mary Parish

Texas Co. No. 2 State, sec. 37-17s-9e. Driving piling.

Jeanerette—St. Mary Parish

Herton Oil Co. No. 1-A Roane Sugar Co., sec. 38-13s-9e. Drlg. sh. 10,284 ft.

Jennings—Acadia Parish

F. W. Bennett No. 2 Brethern, sec. 41-9s-2w. Drlg. gas sd. 7,140 ft.
W. T. Burton No. 6 Roboria, sec. 41-9s-2w. Drlg. sh.&L. 4,201 ft.
H. Fotiades No. 2 Washington Opelousas, sec. 41-9s-2w. 16-in. csg. 106 ft.; T.D. 6,659 ft.; 7-in. csg. 6,659 ft.; hole cleaned; tstg.
Frio Oil Co. No. 1 Gulf fee, sec. 45-9s-2w. Drlg. sh. 6,716 ft.
Frio Oil Co. No. 1 Iowa-Jennings, sec. 45-9s-2w. Drlg. sh.&L. 6,027 ft.
Lodak Oil Co. No. 5 J. Clement, sec. 46-9s-2w. T.D. 2,058 ft.; 6⅝-in. 1,740 ft.; I.P. 35 bbls. P.L.O.; pmpg.
T. G. Markley No. 1 Gulf Ld., sec. 45-9s-2w. Drlg. sh. 6,860 ft.
W. S. Noble et al No. 1 Ed Prather, sec. 45-9s-2w. R.U.
Pet. Heat & Power Co. No. 1 Iowa-Jennings, sec. 45-9s-2w. T.D. 3,770 ft.; P. B. 1,055 ft.; to stdrk.; cd. oil sd. 1,760 ft.; prep. to test.
Pet. Heat & Power Co. No. 2 Iowa-Jennings, sec. 45-9s-2w. Drlg. sh. 110 ft.
Pet. Heat & Power Co. No. 1 Smith, sec. 45-9s-2w. S.D. 805 ft.
Stanolind O. & G. Co. No. 112 Crowley Oil & Mineral Co., sec. 48-9s-2w. 10¾-in. csg. 1,395 ft.
Stanolind O. & G. Co. No. 19 Houssiere-Latrelle, sec. 47-9s-2w. T.D. 6,448 ft.; P.B. 6,135 ft.; to strt. hole; T.D. 6,979 ft.; P.B. 6,700 ft.; P.B. and sdtrkg. 7,509 ft.; T.D. 7,917 ft.; 7-in. csg. 7,917 ft.; T.D. 8,438 ft.; perf. csg. 7,764-79 ft.; recvd. 3 bbls. of mud.
Superior Oil Co. No. 3 Jules Clement, sec. 46-9s-2w. Drlg. sd. 5,850 ft.
Superior Oil Co. No. 10 Leckett, sec. 43-9s-2w. T.D. 5,256 ft.; 7-in. csg. 5,256 ft.; I.P. 376 B.P.D.; 13/64-in. ck.
Superior Oil Co. No. 13 Leckelt, sec. 42-9s-2w. Drlg. sh. 5,552 ft.
Superior Oil Co. No. 14 Leckelt, sec. 42-9s-2w. Drlg. sh. 6,728 ft.
Victor Weisse No. 1 Clement, sec. 46-9s-2w. T.D. 3,247 ft.; 6⅝-in. csg. 3,032 ft.; blew out; R.U. christmastree to test. failed to flow; tstg.

Lafitte—Jefferson Parish

Carter-Perrin & Brian No. 1 Lucien, Adams, sec. 9-17s-24e. Loc.
Texas Co. No. 10 Lafitte, sec. 17-17s-24e. T.D. 10,191 ft.; 7⅝-in. csg. 10,191 ft.; perf. csg. 10,005-45 ft.; I.P. 1,608 B.P. D.; ⅝-in. ck.
Texas Co. No. 1-B Madison, sec. 19-17s-24e. T.D. 10,226 ft.; conditioning mud.
Texas Co. No. 3 Marrero Ld. Co., sec. 29-17s-24e. R.U.
Texas Co. No. 9 Rigolet-Cooperation Fur Co., sec. 29-17s-24e. Cd. oil sd. 10,106-11 ft.; T.D. 10,214 ft.; D.S. stk. at 8,034 ft.; shot at 7,099 ft.; recvd. D.S.; washing and rmg. hole.

Lake Barre—Terrebonne Parish

Texas Co. No. 16 State, sec. 32-21s-19e. Drlg. anhy. 3,765 ft.
Texas Co. No. 42 State-Lake, sec. 40-21s-19e. T.D. 6,704 ft.; run 9⅝-in. csg.

Lake Long—Lafourche Parish

Fohs Oil Co. No. 4 State, sec. 64-17s-19e. 10¾-in. csg. 2,707 ft.; T.D. 10,239 ft.; 7-in. csg. 10,239 ft.; T.D. 10,437 ft.; set 5-in. lnr. on bttm.; prep. to test.

Leesville—Lafourche Parish

Wm. Helis No. 1-A City of New Orleans, sec. 35-21s-22e. Loc.

Lirette—Terrebonne Parish

Humble O. & R. Co. No. 1 Wurzlow, sec. 32-19s-19e. Top sd. S.G. 8,423 ft.; T.D. 8,566 ft.; 9⅝-in. csg. 8,521 ft.; found split csg. 7,063-73 ft.
Union Prod. Co. No. 1 Fundenburk, Unit 1, sec. 50-19s-19e. S.D. 11,003 ft.

Lockport—Calcasieu Parish

Continental Oil Co. No. 1 J. H. Moss, sec. 8-10s-9w. 10¾-in. csg. 986 ft.; drlg. sh. 6,430 ft.

New Iberia—Iberia Parish

Canal Oil Co. No. 10 Bernard, sec. 54-12s-7e. Drlg. sh. 3,248 ft.
H. Fotiades No. 6 Gulf Ld., sec. 25-12s-7e. Cg. sd. 3,943 ft.
Wm. Helis No. 5 Bolivar, sec. 56-12s-7. T.D. 4,337 ft.; salt; P.B. and sdtrkd.; T.D. 3,594 ft.; 7-in. csg. 3,100 ft.; made sqz. job 3,070-60 ft.; P.B.; drlg. out to 3,145 ft.; swbd. dry; pig. scrn.; P.B. 3,170 ft.
Wm. Helis No. 7 Bullock and Burke, sec. 25-12s-7e. Drlg. sh. 2,023 ft.
Texas Co. No. 4 Bryant, sec. 25-12s-7e. T.D. 5,054 ft.; 7-in. csg. 5,039 ft.; perf. csg. 4,310-45 ft.; tstg.
Texas Co. No. 2 Burke, sec. 56-12s-7e. Drlg. sdy. sh. 4,962 ft.
Texas Co. No. 7 Duke, sec. 26-12s-7e. Drlg. S.W. sd. 4,002 ft.
Texas Co. No. 4 Tralind, sec. 25-12s-7e. Drk.

North Crowley—Acadia Parish

Humble O. & R. Co. No. 1 R. C. Davis, sec. 45-8s-1e. 16-in. csg. 118 ft.; S.D.
Humble O. & R. Co. No. 3 Federal Ld. Bnk., sec. 34-8s-1e. Drlg. sh. 4,775 ft.
Humble O. & R. Co. No. 2 Habetz, sec. 45-8s-1e. T.D. 8,160 ft.; 7-in. csg. 8,150 ft.; tstg.; I.P. 640 B.P.D.; ¼-in. ck.

Port Barre—St. Landry Parish

Emerson Oil Co. No. 5 Sibille Oil Co., sec. 20-6s-5e. T.D. 3,475 ft.; 5-in. csg. 3,470 ft.; tstd. S.W.; P.B. 3,432 ft.; tstd. S.W.; pulling screen.
T. C. Markley No. 1 Lahaye, sec. 4-6s-5e. T.D. 4,281 ft.; P.B. 3,800 ft.
Pan American Prod. Co. No. 1 Lahaye, sec. 4-6s-5e. R.U.
Y. D. Spill No. 1 Gaudet, sec. 4-6s-5e. T.D. 1,000 ft.; S.D.
Texas Co. No. 22 Botney Bay Lbr. Co., sec. 4-6s-5e. T.D. 3,569 ft.; P.B. 3,434 ft.; set csg. 3,434 ft.; perf. csg. 3,370-3,400 ft.; pmpg. S.W.; tstg.

Quarantine Bay—Plaquemines Parish

Gulf Ref. Co. No. 4 State, sec. 17-19s-17e. T.D. 5,700 ft.; 9⅝-in. csg. 5,560 ft.; oil sd. 9,228-29 ft., 9,234-36 ft. and 9,617-18 ft.; drlg. sdy. sh. 9,850 ft.; oil and gas shows 9,617-94 ft.
Gulf Ref. Co. No. 5 State, sec. 17-19s-17e. Loc.
Gulf Ref. Co. No. 6 State, sec. 17-19s-17e. Driving piling.

Raceland—Lafourche Parish

Amerada Pet. Corp. No. 1 Godchaux Sugars, Inc., sec. 34-15s-19e. 18⅝-in csg. 262 ft.; drlg. sh. 9,051 ft.
Amerada Pet. Corp. No. 2 South Coast Corp., sec. 35-15s-19e. 11¾-in. csg. 2,666 ft.; drlg. sd.&sh. 8,822 ft.

Sorrento—Ascension Parish

Pan American Prod. Co. No. 11 United Ld. Co., sec. 15-10s-4e. R.U.
Sorrento Pet. Corp. No. 2 White, sec. 22-10s-4e. Drk.

South Roanoke—Jeff Davis Parish

Continental Oil Co. No. 1 Joe Sturdivant, sec. 36-10s-4w. Drlg. sh. 8,524 ft.
Union Sulphur Co. No. 2 T. R. S. Farms, sec. 23-10s-4w. Drlg. sh. 5,256 ft.

South Elton—Jeff Davis Parish

Stanolind O. & G. Co.-Amerada Pet. Corp. No. 3-B Calcasieu Natl. Bank, sec. 27-7s-3w. T.D. 9,154 ft.; conditioning hole; 9⅝-in. csg. 8,647 ft.; T.D. 13,210 ft.; D.S. stk.; P.B.; 7-in. csg. 9,230 ft.; P.B. 9,188 ft.; perf. csg. 9,140-55 ft.; no showing; P.B. 8,998 ft.; perf. csg. 8,990-98 ft.; flwg. 300 bbls. S.W.; ¾-in. ck.; W.P. 625 lbs.; trace of sd. and dist.; started making S.W.; killing to retest; sqzd. perf.; P.B.; T.D. 8,931 ft.; cut and pulled csg. to 7,206 ft.; perf. csg. 7,182-7,200 ft.; making D.S.T.

Starks—Calcasieu Parish

Lutcher-Moore Co. No. 5 fee, sec. 19-9s-12w. Drlg. sd. rk. 3,445 ft.
J. R. Turnbull No. 1 Industrial Lbr. Co., sec. 19-9s-12w. Drlg. sd.&sh. 1,420 ft.

Sulphur—Calcasieu Parish

Union Sulphur Co. No. 860 fee, 1,250 ft. W and 216 ft. N of C sec. 29-9s-10w. T.D. 5,737 ft.; P.B. and S.T.; T.D. 5,130 ft.; 5-in. csg. 5,118 ft.; I.P. 154 bbls. fluid; ¼-in. ck.
Union Sulphur Co. No. 861 fee, sec. 29-9s-10w. T.D. 3,780 ft.; 7-in. csg. 3,775 ft.; failed to flow; perf. csg. 3,550-60 ft.; tstg.
Union Sulphur Co. No. 863 fee, sec. 29-9s-10w. Drk.

Timballer Bay—Lafourche Parish

Gulf Oil Corp. No. 4 State, sec. 36-23-21e. T.D. 7,373 ft.; twisted off drill collar; sdtrkd. jnk.; cd. sd. 5,332-36 ft.; tstd. 3 stands drlg. mud, oil and sd.; cd. oil sd. 5,336-43 ft.; drlg. sh. 6,272 ft.; cd. oil sd. 5,922-24 ft. and 6,208-10 ft.

Valentine—Lafourche Parish

Wm. Helis No. 2 Valentine Sugar, sec. 3-17s-20e. Drlg. sh. 2,600 ft.
Pan American Prod. Co. No. 2-B Community, sec. 58-17s-20e. Drlg. sd.&sh. 8,109 ft.

Venice—Plaquemines Parish

Tide Water Oil Co. No. 5 Manhattan Fruit Co., sec. 26-26s-30e. Top oil sd. 7,250 ft.; T.D. 7,300 ft.; P.B. 4,800 ft.; sdtrkd at 4,813 ft.; cd. oil sd. 7,101-68 ft.; T.D. 7,290 ft.; 7-in. csg. 7,191 ft.; perf. csg. 5,960-64 ft.; 10-min. D.S.T.; tstd. 120 ft. drlg. mud with oil odor; perf. csg. 5,964-68 ft.; recvd. 14 stnds. of oil, 3 stnds. of drlg. mud and sd.; making sqze. job; P.B. 3,650 ft.; sdtrkd. at 3,629 ft.; T.D. 6,015 ft.; well blew out, stuck D.S. 5,985 ft.
Tide Water Oil Co. No. 7 Manhattan Ld. & Fruit Co., sec. 26-21s-30e. 10¾-in. csg. 2,462 ft.; cd. oil sd. 7,128-45 ft.; T.D. 7,205 ft.; 7-in. csg. 7,176 ft.; I.P. 509 bbls. P.L.O. per day; ⅞-in. ck.

Villa Platte—Evangeline Parish

Amerada Pet. Corp. No. 1 A. Fournier, sec. 44-3s-2e. Drlg. sd. 7,750 ft.
Continental Oil Co. No. 1 Hattie Haas, sec. 44-3s-2e. T.D. 9,156 ft.; oil sd. 9,078-9,138 ft.
Continental Oil Co. No. 1 Martha Haas, sec. 44-3s-2e. T.D. 9,098 ft.; 6⅝-in. csg. 9,098 ft.; I.P. 507 bbls. P.L.O. per day; ⅞-in. ck.
Continental Oil Co. No. 1 Ludeau, sec. 45-3s-2e. Drlg. sh. 8,890 ft.
Continental Oil Co. No. 1 T. E. Vidrine, sec. 47-3s-2e. Drlg. sh. 10,359 ft.
Continental Oil Co. No. 1 J. E. Vidrine, sec. 46-3s-2e. Drlg. sh. 6,195 ft.

Welsh—Jeff Davis Parish

Humble O. & R. Co. No. 1-B T. S. Stegall, sec. 29-9s-5w. T.D. 125 ft.; abd.
A. V. Peters No. 3 fee, sec. 22-9s-5w. S.D. 680 ft.
Stanolind O. & G. Co. No. 2 Conover, sec. 20-9s-5w. T.D. 7,353 ft.; well tried to blow out; stk. D.S.; washing over stk. D.S.

Woodlawn—Jeff Davis Parish

Union Sulphur Co. No. 3 Calcasieu Natl. Bnk., sec. 1-9s-6w. Drlg. sh.&L. 7,685 ft.

S. LOUISIANA WILDCATS

Acadia Parish

H. E. Dalton No. 1 Setting, sec. 17-7s-1w. T.D. 5,106 ft.; P.B. to approx. 500 ft.; T.D. 3,925 ft.; D.S. stuck.
Humble O. & R. Co. No. 1 Finch, sec. 22-10s-1e. 9⅝-in. csg. 7,474 ft.; T.D. 10,222 ft.; P.B. 7,318 ft.; perf. csg. 7,308-15 ft.; flwd. 21 B.P.H. first day and started making 75% S.W.; sqzd. off perf.; perf. csg. 7,311-13 ft.; flwd. 17 B.O.P.H. for 9 hrs. and started flwg. 50% S.W.; perf. csg. 7,311-13 ft.; I.P. 100 B.F.P.D.; 35 B.O. and 65 B. S.W.; 5/32-in. ck.

Avoyelles Parish

G. C. Koch et al No. 1 Kelone, sec. 21-

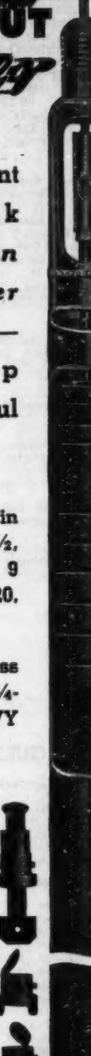
MILLER

CLEANS-OUT faster

Sand and sediment are holding back YOUR oil—*clean them out faster* with a MILLER—the Sand Pump with the powerful suction action.

The MILLER is made in diameters of 2½, 3, 3½, 4, 4¼, 5, 5½, 7 and 9 inches and lengths of 20, 25 and 30 feet.

5/32-inch wall thickness in REGULAR Type, ¼-inch wall tubes HEAVY Type Sand Pumps.



INTERCHANGEABLE BOTTOMS
To Meet Every Condition

● BAILER BOTTOM
With the Bailer Bottom installed the MILLER is quickly changed to a Bailer giving you a combination of either Bailer or a Sand Pump in one tool.

● SAND BOTTOM
Used when tools are run and when well is shut to quickly remove loose material.

● STAR BOTTOM
Used for cutting the sand loose.

● CHISEL BOTTOM
(In Pump)
With this bottom tightly packed sand can be easily broken in small pieces so it can be picked up in the pump.

Write for Descriptive Folder and Price List

See Page 1445 COMPOSITE CATALOG

PATENTED
NO. 1370340
NO. 1523080
NO. 1767390
NO. 1962025
NO. 1990526
NO. 2059947

MILLER Sand Pump Co.

General Offices and Shop, Box 4516
OKLAHOMA CITY, OKLA., U. S. A.

Branch Shops and Offices:
SAPULPA, OKLA. and KILGORE, TEX.

FOR SALE BY SUPPLY STORES EVERYWHERE

2n-3e. 10¾-in. csg. 987 ft.; S.D. 6,021 ft.; prep. to resume drlg.

Beauregard Parish

Republic Prod. Co. No. 1 Lutcher-Moore Lbr. Co., sec. 10-13w-6s. 10¾-in. csg. 1,015 ft.; T.D. est. 8,290 ft.; perf. csg. 7,575-79 ft.; I.P. 50 bbls., 61-grav. dist. per day; ¾-in. ck.

Calcasieu Parish

Sun Oil Co. No. 1 Lutcher-Moore Lbr. Co., sec. 1-8s-13w. Drlg. sh. 8,804 ft.
Wheeler Oil Corp. No. 2 Sch. Ld., sec. 16-9s-7w. 15½-in. csg. 46 ft.; S.D. 641 ft.

Cameron Parish

Humble O. & R. Co. No. 1 K. B. Hanzen, 466 ft. S and E, NW cor. SW¼ sec. 9-12s-6w. T.D. 3,083 ft.; run 13⅜-in. csg.
Humble O. & R. Co. No. 1-B Miami Corp., sec. 7-14s-6w. 13⅜-in. csg. 2,150 ft.; drlg. sdy. sh. 10,788 ft.
Pure Oil Co. No. 1 Calcasieu Natl. Bnk., sec. 18-12s-4w. Drk.
Superior Oil Co. No. 1 Sells, sec. 5-15s-8w. T.D. 6,350 ft.; 10¾-in. csg. 6,350 ft.; drlg. sd. 9,551 ft.

Iberia Parish

Texas Co. No. 1 Bayless-Jones, sec. 58-12s-5e. T.D. 8,250 ft.; 9⅝-in. csg. 8,242 ft.; drlg. sh. 8,685 ft.
Texas Co. No. 2-B Vermilion Bay, sec. 20-16s-5e. T.D. 9,101 ft.; P.B. and sdtrkd. at 5,788 ft.; T.D. 7,020 ft.; P.B. 6,385 ft.; to sdtrk.; T.D. 7,623 ft.; P.B. 7,176 ft.; to sdtrk.; T.D. 7,348 ft.; 9⅝-in. csg. 7,263 ft.; T.D. 9,667 ft.; set 2,990 ft. of 5¾-in. csg. 9,667 ft.

Jefferson Parish

Julius Szodomka No. 1 Carroll, sec. 12-12s-11e. Drlg. sh. 4,185 ft.

Lafourche Parish

Sun Oil Co. No. 1 Dilbert Stark, Brown Cypress Co., sec. 70-15s-15e. Drk.

Orleans Parish

W. T. Burton No. 1 State-Lake Pontchartrain, Twp. 10s-13e. Driving piling.

Plaquemines Parish

Gulf Oil Corp. No. 1 Grand Prairie Lve. Dist., sec. 6-20s-19e. Drlg. 100 ft.

Rapides Parish

J. J. Farrell No. 1 W. P. Aertker, sec. 16-4n-1e. Drk.

St. Bernard Parish

Gulf Ref. Co. No. 3 State Lake, Twp. 12s-15e. 13⅜-in. csg. 1,558 ft.; 9⅝-in. csg. 6,486 ft.; drlg. sh. 8,267 ft.

St. James Parish

Continental Oil Co. No. 1 Realty Operators, sec. 17-12s-17e. 18⅝-in. csg. 302 ft.; 13⅜-in. csg. 2,473 ft.; T.D. 6,501 ft.; cg. sh. 6,792 ft.

St. John the Baptist Parish

Shell Pet. Corp. No. 1 Godchaux, sec. 97-11s-7e. Drlg. wtr. well; bldg. drk.

St. Landry Parish

Western Gulf Pet. Co. No. 1 St. Mary Ld. Co., sec. 7-8s-9e. T.D. 9,017 ft.; abd.

St. Martin Parish

Shell Pet. Corp. No. 1 Jeanerette Lbr. Co., sec. 11-4s-2e. Cg. sd. 7,956 ft.
Texas Co. No. 6 State Lake Mongoulois, sec. 10-10s-9e. Driving piling.
Texas Co. No. 11 St. Martin Ld. Co., sec. 21-8s-7e. Drlg. sd.&L. 6,012 ft.

St. Tammany Parish

Ozro B. Phillips No. 1 A. J. Planche, sec. 28-6s-10e. S.D. 2,438 ft.

Terrebonne Parish

Barnsdall Oil Co. No. 1 R. R. Barrow, Inc., sec. 41-17s-18e. Drk.
Fohs Oil Co. No. 1 Buckley & Bourg, sec. 77-19s-17e. Stk. 7-in. csg. at 11,684 ft.; T.D. 13,333 ft.; cmtd. 1,957 ft. of 5-in. csg. at 13,301 ft.; prep. to test.
Fohs Oil Co. No. 1 State, sec. 41-19s-19e. 18⅝-in. csg. 246 ft.; cd. sd. S.G. 6,894-6,915 ft.; T.D. 9,232 ft.; 9⅝-in. csg 9,226 ft.; T.D. 12,511 ft.; run 7-in. csg.
Shell Pet. Corp. No. 1 Laterre, sec. 73-18s-18e. Dredge canal.
Shell Pet. Corp. No. 1 Realty Operators, sec. 10-18s-16e. 13⅜-in. csg. 2,461 ft.; T.D. 2,483 ft.
Texas Co. No. 1 State, Callau Island Bay, Twp. 23s-14e. Loc.

Vermilion Parish

Magnolia Pet. Co. No. 1 J. B. Ferguson, sec. 5-12s-2w. 13⅜-in. csg. 3,084 ft.; drlg. sd. 8,795 ft.

Vernon Parish

W. T. Burton No. 1 Gulf Lbr. Co., sec. 32-1n-6w. Loc.

TEXAS

Week Ending June 4

GULF COAST FIELDS

Lockridge—Brazoria County

Gulf Oil Corp. No. 5 Carrie Baker, J. W. Hall Sur. No. 11. T.D. 6,366 ft.; 5-in. csg. 6,365 ft.
Gulf Oil Corp. No. 7-A Wilkes and Smith, J. W. Hall Sur. No. 11. R.U.

Hastings Field—Brazoria County

Humble O. & R. Co. No. 6 B. H. Alexander, H.T.&B. Sur. No. 28. T.D. 6,060 ft.; W.O.C.
Humble O. & R. Co. No. 7 J. E. Alexander, H.T.&B. Sur. No. 28. Drk.
Humble O. & R. Co. No. 2 Pat O'Day, H.T.&B. Sur. No. 28. R.U.
Humble O. & R. Co. No. 10 South Tex. Grain Co., Perry & Austin Sur. T.D. 6,113 ft.; tstg.
Stanolind O. & G. Co. No. 10 Grote, A. C.H.&B. Sur. No. 2. T.D. 5,290 ft.
Stanolind O. & G. Co. No. 28-C W. R. Curkett, H.T.&B. Sur. No. 35. Drlg. sh.&shls. 4,910 ft.
Stanolind O. & G. Co. No. 19 Drake, H. T.&B. Sur. No. 36. T.D. 5,550 ft.; tstg.
Stanolind O. & G. Co. No. 20 Steve Paul, A.C.H.&B. Sur. No. 2. Drlg. sh.&L. 229 ft.
Stanolind O. & G. Co. No. 8 W. B. Wooster, A.C.H.&B. Sur. No. 1. Drlg. sh. 4,510 ft.

Old Ocean—Brazoria County

Harrison & Abercrombie No. 1 L. Augusburger, C. Breen Sur. 9⅝-in. csg. 7,011 ft.; T.D. 10,433 ft.; tstg.
Harrison & Abercrombie No. 1 David Kaufman, C. Breen Sur. T.D. 10,173 ft.; plg. back.
Harrison & Abercrombie No. 1 I. N. Troyer, Chas. Breen Sur. 9⅝-in. csg. 7,010 ft.; drlg. sh. 9,067 ft.

Pledger—Brazoria County

Danciger O. & R. Co. No. 1 Leona H. Carter, Grey & Moore Sur. Drlg. sh. 5,737 ft.

West Columbia—Brazoria County

Frost and Dunnan No. 1 E. S. Parker, Geo. Tennille Sur. Cg. sh. 5,227 ft.
Merrick Oil Co. No. 2 T. L. Smith, G. Tennille Sur. Drk.
Mike Hogg No. 2 Varner, W. Varner Lge. T.D. 5,901 ft.; P.B. 5,309 ft.; comp.; no ga.
E. W. Ogden No. 1 S. W. Pipkin, G. Tennille Sur. Drlg. sh. 1,530 ft.
Sterling O. & R. Co. No. 1 H. Perry, G. Tennille Sur. Drlg. sh. 2,930 ft.
Sterling O. & R. Co. No. 2 Powers, G. Tennille Sur. Drlg. sh. 4,637 ft.
Texas Co. No. 21 Abrams, Geo. Tennille Sur. T.D. 5,433 ft.; P.B. to sdtrk.; T.D. 5,686 ft.; tstg.
Texas Co. No. 23 Abrams, G. Tennille Sur. Drlg. sh.&L. 4,430 ft.
Texas Co. No. 5 Smith, G. Tennille Sur. Drlg. sh. 4,027 ft.

Cedar Point Field—Chambers County

Humble O. & R. Co. No. 3-95 State, Galveston Bay. Drlg. sh. 1,530 ft.
Standard Oil Co. of Texas and Salt Dome Oil Co. No. 2 State, sec. 119, 16-in. csg. 286 ft.; 10¾-in. csg. 1,650 ft.; cg. csg. 286 ft.; 10¾-in. csg. 1,650 ft.; T. D. 6,120 ft.; perf. csg. 6,040-98 ft.; tstg. flwd. S.W.; sqzd. off perf. to reperf. prep. to retest; perf. csg. 5,974-82 ft.; tstg.

Seabreeze—Chambers County

Sun Oil Co. No. 4 Acom, sec. 103. R.U.
Sun Oil Co. No. 1-C White, T. Wells Sur. Drlg. sh. 2,139 ft.

Greens Lake—Galveston County

Sun Oil Co. No. 2 Houston Farm Dev. Co., D. Buckley Sur. Drk.

Hitchcock—Galveston County

Maco Stewart No. 2 fee, J. Spillman Sur., 600 ft. due E of No. 3. T.D. 5,151 ft.; 5½-in. csg. 5,151 ft.

Bammel—Harris County

H. M. Harrell et al No. 1 Polley, C. G. McLean Sur. R.U.

Clear Lake—Harris County

West Prod. Co. No. 1 Dobie fee, W. M. Dobie Sur. Drlg. sh. 636 ft.

Clinton—Harris County

Stanolind O. & G. Co. No. 1 Stalmark, Reels & Trobough Sur. Drlg. sh. 3,687 ft.
Stanolind O. & G. Co. No. 2 Edwards, Reels & Trobough Sur. Drk.
Stanolind O. & G. Co. No. 1 Paul Weaver, Reels & Trobough Sur. Loc.

Eureka—Harris County

Allamo Drlg. Co. et al No. 3 Laura Lackner, H. Reinerman Sur. 9⅝-in. csg. 2,508 ft.; top oil sd. 7,692-7,730 ft.; T.D. 7,745 ft.; perf. csg. 7,691-7,731 ft.; I.P. 596 B.P.D.; ¼-in. ck.
Jack Frazier No. 3 Varner Realty Co., J. Reinerman Sur. Drlg. sh. 3,720 ft.
Houston Oil Co. No. 2 Helberg-Lackner, J. Reinerman Sur. Top oil sd. 7,691 ft.; T.D. 7,753 ft.; oil sd. 7,691-7,717 ft.; 5½-in. ck.; perf. csg. 7,702-12 ft.; tstd S.W.
Houston Oil Co. No. 3 Helberg & Lackner, J. Reinerman Sur. Drk.
Tide Water Associated Oil Co. No. 1 Laura Lackner, J. Reinerman Sur. Drlg. sh. 2,810 ft.

Fairbanks—Harris County

Amerada-Stanolind O. & G. Co. No. 1 W. E. Denman, J. Waugh Sur. T.D. 6,848 ft.; rng. csg.
Amerada-Stanolind O. & G. Co. No. 1 F. W. Farnsworth, J. Clarkson Sur. Drlg. sh. 1,510 ft.
Amerada-Stanolind O. & G. Co. No. 1 Nigteland Inv. Co., J. M. Dement Sur. Drk.
Amerada-Stanolind O. & G. Co. No. 2 Mary Foley, J. Clarkson Sur. Abd. loc.
Amerada-Stanolind O. & G. Co. No. 2 E. W. Mills, A. Lawson Sur. T.D. 6,855 ft.; tstg.
Amerada Pet. Corp.-Stanolind O. & G. Co. No. 1 C. W. Hahl, W. K. Hamblin Sur. T.D. 6,893 ft.; 5½-in. csg. 6,892 ft.
Amerada-Stanolind O. & G. Co. No. 1 A. Sebek, W. K. Hamblen Sur. Cg. 6,826 ft.
Amerada-Stanolind O. & G. Co. No. 1 J. F. Sebek, G. Williams Sur. Drk.
Amerada-Stanolind O. & G. Co. No. 1 E. W. Thompson, J. Clarkson Sur. Drlg. sh. 4,367 ft.
Carroll Oil Co. No. 1 Ralph Johnston, J. N. Dement Sur. T.D. 6,864 ft.; perf. csg. 6,839-43 ft.; would not flow; S.D.
Gem Oil Co. No. 4 B. W. Reid, G. Ayers Sur. Drlg. sh. 5,430 ft.
E. M. Hailey No. 1 K. Fisher, A. Area Sur. R.U.
Housh-Thompson & Schofield No. 1 Ariola, Williams Sur. Drlg. sh. 1,612 ft.
Housh-Thompson & Schofield No. 1 Windorf, G. Williams Sur. Drlg. sh. 5,613 ft.
Showers and Moncrief No. 1 G. W. Reid, J. Waugh Sur. T.D. 6,840 ft.; 7-in. csg. 6,838 ft.
E. L. Smith and Ownby Drlg. Co. No. 1 Gibson, Geo. Ayers Sur. Drlg. sh. 3,210 ft.
Union Prod. Co. No. 1 Goodykoontz, W. S. Powell Sur. Cg. 6,812 ft.
H. E. Williams and Thompson No. 1 M. Sterns, G. Williams Sur. Drlg. sh. 5,615 ft.
Windsor Oil Co. No. 1 Ley, J. Waugh Sur. Cg. 6,810 ft.

Friendswood—Harris County

Humble O. & R. Co. No. 9 Beamer, T. Choate Sur. Drk.
Humble O. & R. Co. No. 2 G. R. Cottingham, T. Choate Sur. T.D. 6,060 ft.; W.O.C.
Humble O. & R. Co. No. 3 Cottingham, T. Choate Sur. Drk.
Humble O. & R. Co. No. 3-B Goodwin, W. K. Smith Sur. T.D. 6,044 ft.; W. O.C.
Humble O. & R. Co. No. 1 B. A. Gray, Perry & Austin Sur. Drk.
Humble O. & R. Co. No. 3 Herman Hospital, T. Choate Sur. Drk.
Humble O. & R. Co. No. 1 Houston Dev. Co., D. Putnam Sur. Drlg. sh. 1,068 ft.
Humble O. & R. Co. No. 1 J. L. Jones, Perry & Austin Sur. Drk.
Humble O. & R. Co. No. 1 J. D. Owens, T. Choate Sur. Drk.
Humble O. & R. Co. No. 1x 2-A Port City ice Co., T. Choate Sur. Drk.
Humble O. & R. Co. No. 3 J. H. Ross, Perry & Austin Sur. T.D. 6,044 ft.; W.O.C.
Humble O. & R. Co. No. 1 E. E. Watson. Drk.

Cordele—Jackson County

H. J. Porter No. 1 Kern-Ackley, A. Baker Sur. R.U.
H. J. Porter No. 1 Ed Monia Pressley, Peter White Sur. 10¾-in. csg. 171 ft.; cd. sd. S.O. 2,667-72 ft.; tstg.
H. J. Porter No. 1 Woussi, Peter White Sur. Loc.

Clam Lake—Jefferson County

Shell Pet. Corp. No. 2 McFaddin, S. A. Pace Sur. Cd. oil sd. 5,553 ft.; cg. sh. 7,640 ft.

North Cheek—Jefferson County

Magnolia Pet. Co. No. 4 J. H. Phelan, A. Stivers Sur. 18⅝-in. csg. 135 ft.; T.D. 8,896 ft.; P.B. 8,200 ft.; to sdtrk and test sd. 8,443-68 ft.

Hardin—Liberty County

Amerada Pet. Corp. No. 1 J. H. Cessna, H. B. Johnston Sur. R.U.
Ark. Fuel Oil Co. No. 2 W. J. Green, A. B. Hardin Sur. R.U.
Atlantic Ref. Co. No. 1 Richardson, A. B. Hardin Sur. T.D. 7,596 ft.; W.O.C.
Fohs Oil Co. No. 2 Johnson-Finley, H. B. Johnston Sur. 9⅝-in. csg. 178 ft.; T.D. 7,647 ft.; perf. csg. 7,590-7,600 ft.; I.P. 510 B.P.D.; ¼-in. ck.
Gulf Oil Corp. No. 3-A J. C. Barfield, H. B. Johnston Sur. Drlg. sh.&L. 7,697 ft.
Gulf Oil Corp. No. 3 J. H. Cessna, H. B. Johnston Sur. R.U.
Humble O. & R. Co. No. 1 M. H. Johnson, H. B. Johnston Sur. Loc.
Glen McCarthy No. 1 Oliver, H. B. Johnston Sur. Drlg. sh. 2,210 ft.
Woodley Pet. Co. No. 1 Chambers, H. B. Johnston Sur. R.U.
Woodley Pet. Co. No. 1 W. S. Partlow, H. B. Johnston Sur. T.D. 7,656 ft.; tstg.
Woodley Pet. Co. No. 1 West et al, H. B. Johnston Sur. T.D. 7,636 ft.; tstg.

Bay City—Matagorda County

Atlantic Ref. Co. No. 1 Gola, E. Hall Sur. R.U.
Hamman Expl. Co. No. 1 S. A. Foote, E. Hall Sur. Drlg. 1,400 ft.

McCrosky—Matagorda County

Pierce Est. No. 3-A Pierce Est., D. Fenton Sur. Top oil sd. 6,585 ft.; T.D. 6,616 ft.; 5½-in. csg. 6,616 ft.

Palacios—Matagorda County

Bennett Prod. Co. No. 1 Foley Ld. Co., L. Goodwin Sur. Cg. sd. 8,539 ft.
Sun Oil Co. No. 1 F. K. Robeson, L. Goodwin Sur. Drk.

Orange—Orange County

W. V. Bowles No. 1 W. H. Scales, Wm. Dyson Sur. T.D. 6,211 ft.; 5½-in. csg. 6,179 ft.; perf. 6,133-36 ft.; swbg.
C. L. Brown No. 1 Chesson, Wm. Dyson Sur. Drlg. sh. 2,430 ft.

Spurger—Tyler County

Republic Prod. Co.-Houston Oil Co. No. 9, Hurd, N. Hurd Sur. T.D. 7,700 ft.; 7-in. csg. 7,660 ft.; comp.; no ga.
Republic Prod. Co. No. 10 Hurd, N. Hurd Sur. R.U.

GULF COAST WILDCATS

Brazoria County

Texas Co. No. 5 Freeport Sulphur Co., H. Burt Sur. T.D. 1,490 ft.; salt water.

Burleson County

Red Bank Oil Co. No. 1 Coffield, E. Sante Sur. T.D. 6,173 ft.; R.U. to pmp.; fluid standing 5,000 ft. from bttm.

Calhoun County

Adams & Lyles et al No. 1 Forster, Lemuel Walker Sur. T.D. 6,526 ft.; abd.

Chambers County

Geo. Anderson No. 1 Julia Casey, W. D. Smith Sur. Loc.

Fort Bend County

Strake Pet. Corp. No. 1 G. L. Dew, D. Bright Sur. T.D. 6,410 ft.; rmg.
Strake Pet. Co. No. 2 Sugarland Industries, Wm. Stafford Sur. T.D. 5,500 ft.; P.B. to sdtrk.

Galveston County

Sun Oil Co. No. 1 Atkins, Burrell Franks Sur. Drlg. sh. 6,945 ft.
Sun Oil Co. No. 1 Cade, A. Dickinson. 13⅜-in. csg. 2,218 ft.; T.D. 8,090 ft.; cutting out D.S.

Harris County

J. Frazier-C. B. Bunte et al No. 1 Houston Deep Water Ld. Co., Thos. Earle Sur. Cg. sh. 5,749 ft.
Merit Oil Co. No. 1 Guy Smith, F. Rankin Sur. 10¾-in. csg. 1,266 ft.; drlg. sh. 6,325 ft.

Jasper County

John Mayo No. 1 Cartwright, Legrande Sur. Drk.

Jackson County

Humble O. & R. Co. No. 1 J. R. Davis, I.&G.N. Sur. No. 20, Blk. 150. Drlg. sh.&L. 5,594 ft.
Magnolia Pet. Co. No. 1 West Ranch, Ramon Musquez Sur. T.D. 6,339 ft.; rmg.

Jefferson County

I. E. Harwell No. 1 State, Gulf of Mexico. T.D. 5,840 ft.; D.S. stk.; pulled in two; S.D.; may abd.

Liberty County

John Mayo-Chapman Minerals No. 1 J. Blanding, J. Eldridge Sur. T.D. 6,110 ft.; abd.

Matagorda County

J. K. Dorrance No. 1 M. Adamcik, I.&G. N. Sur. No. 1. T.D. 7,512 ft.; P.B. 3,500 ft.; sdtrkd.; S.D. 8,025 ft.
Sun Oil Co. No. 1 Fred Robbins, C. H. Vandeveer Sur. T.D. 10,160 ft.; well tried to blow out; 7-in. csg. 10,150 ft. perf. csg. 9,970-10,030 ft.; flwg. by hds.; went dead; reperf. csg. 9,430-9,520 ft.; made sqz. job; reperf. csg.; tstg.

Montgomery County

J. Smith et al No. 1 J. V. Scott, F. A. B. Wheeler Sur. R.U.

Orange County

Texas Co. No. 1 H. J. Lutcher-Stark, Stephen Jett Sur. T.D. 8,399 ft.; abd.

Polk County

C. E. Gates No. 2 I. O. Jackson, J. W. Abbey Sur. Drk.

Trinity County

Boone Bros.-Jordan Drlg. Co. No. 1 Crauch, Joel Clapp Sur. Drlg. sh. 2,249 ft.

Tyler County

Glenn H. McCarthy No. 1 J. A. McShane, B.B.B.&C. Sur. No. 13. Drlg. sh. 7,690 ft.

Waller County

David MacDaniel No. 1 O. M. Dinkins, L. Pearsall Sur. Drlg. sdy. sh. 3,910 ft.
Stanolind O. & G. Co. No. 1 Freeman, H.T.&C. Sur. No. 99. Run 9⅝-in. csg; cg. sh. 9,410 ft.

S. W. TEXAS WILDCATS

Atascosa County

Altgell Mason No. 1 Vanegar, Francisco De La Garza Sur. Drlg. sh. 65 ft.
G. D. Curly and R. E. Phalon No. 1 Henritta Kresch, J. C. Dierks Sur. S.D. 20 ft.
Waldon Oil Co. No. 1 Callahan, Andrew Mays Sur. No. 19. Drlg. 1,100 ft.

Bastrop County

R. C. Franklin No. 2 Yarrington, Jose Manuel Bangs Sur. Drlg. sh. 745 ft.
Humble O. & R. Co. No. 1 Hellsman, J. Cunningham Sur. T.A.C. 5,631 ft.; T. D. 6,737 ft.; abd.
Ralph Ogden No. 1 Storey, Henry Warnell Sur. T.D. 1,773 ft., chk.; 5½-in. csg. 1,653 ft.; W.O.C.
Oscar Raez No. 1 Walters, Michael Grun Sur. Drlg. sh. 1,640 ft.
Western Gulf Pet. Corp. No. 1 T. M. Moon, Jacob L. Standifer Sur. No. 15. T.D. 2,940 ft.; abd.

Bexar County

Nami Herman No. 1 W. F. Fields, A Bustillos Sur. T.D. 737 ft.; 5⅞-in. csg. on bttm.

Caldwell County

Banke Miller Oil Co. No. 1 Martindale, Hector McNeil Sur. S.D. 2,850 ft.
Jan Oil Co. No. 1 Chew, J. McCoy Sur. T.D. 2,022 ft.; 5½-in. csg. 1,930 ft.; S.D.
Mencill Pet. Co. No. 1 J. Wallinger, Gedeon Pace Sur. Drlg. marl 1,191 ft.
C. R. Richardson No. 1 Schowe, T. Maxwell Sur., Abst. 188. S.D. 940 ft.
F. W. Shield No. 1 O'Bannion, Pablo Martinez Sur. No. 9. Drlg. sh. 560 ft.
E. E. Whittington No. 1 Gilmer, H. C. Williams Sur. Drlg. sh. 1,342 ft.

Cameron County

Saxet Prod. Co. No. 1 Port Isabel Irrig. Co. Sur. 30. Drk.

De Witt County

Mayo Oil Co. No. 1 W. D. McCurdy, John Hunt Sur. R.U.

Dimmitt County

Teas & Maryland Corp. No. 1 McKnight, Blk. 13, sec. 23, Base of Austin Chalk 5,201 ft.; top Georgetown L. 6,120 ft.; 5½-in. csg. 7,094 ft.; T.D. 7,141 ft., P.B. 2,850 ft.; swbd. S.W.; shot with nitroglycerin 2,451-56 ft.; blew out; killed; found csg. parted 900 ft. from top; fsg.; P.B. 1,900 ft.; redrld. to 2,-465 ft.; cd. sd. 2,447-65 ft.; 5½-in. csg 2,447 ft.; well began to show S.W.; P.B. to reperf. higher.

Duval County

Henry Brown No. 1 Guy Est., M. E. Gussett Sur. T.D. 3,321 ft.; abd.
Verne Clopton No. 1 Denn, H. K. Allison Sur. Cg. sh. 3,143 ft.
Costa Oil Co. No. 1 Palacios, J. Poitevent Sur. No. 3. 10¾-in. csg. 194 ft.
N. V. Duncan No. 1 Neeley, R. F. Neeley Sur. No. 284. Drlg. sh. 120 ft.
James Foster No. 1 Foster, B.S.&F. Sur. No. 268. Drk.
Frank Gravis No. 1 Megargal, J. Boyles Sur. 10-in. csg. 500 ft.; S.D.
Magnolia Pet. Co. No. 1 Duval Co. Rnh. Co., G.C.&S.F. Sur. No. 291. T.D. 1,-190 ft., sd.; 20-min. D.S.T. 1,185-90 ft. 7-in. csg. 1,185 ft.; I.P. 37 bbls. in 12 hrs.; pmpg.
Magnolia Pet. Co. No. 1 Gray, E. N. Gray Sur. T.D. 4,015 ft.; abd.
Rowan & Hope No. 1 Cuellar, B.B.B.& C. Sur., sec. 96. 10¾-in. csg. 198 ft.; made 15-min. D.S.T. 5,100-36 ft.; tstd. 49 lbs. press.; 500 ft. oil and 120 ft. S.W.; T.D. 5,509 ft.; rng. csg.
Standard Oil Co. of Texas No. 1. Dolores Garcia Sur. 16-in. csg. 1,015 ft.; drlg. sh. 1,510 ft.

Edwards County

Evans & Love No. 1 Steve Brown, Blk. 6, G.W.T.&P. Sur. S.D. 6,261 ft.

Frio County

F. L. Thompson No. 1 Davis, G.B.&C.N. G. Sur. No. 1. Cd. oil sd. 3,722-59 ft.; S.D. 5,086-5,112 ft. of sat. chk. logged at 4,964-76 ft.

Goliad County

Bunte Prod. Co. No. 1 Crews, Maria Jesusa DeLeon Sur. R.U.

Gonzales County

Heard-Hall & Young No. 1 Clark, Robt. S. Armistead Sur. Drlg. 43 ft.; no report.

Guadalupe County

Benstrasser No. 1 Eickenroht, A. Marrs Esnaurrezar Sur. R.U.

Hidalgo County

Hidalgo Prod. Co. No. 1 Daskam Corp., Porc. 45, Blk. 34. S.D. 3,370 ft.

Jim Hogg County

Ralph E. Fair No. 1 Lynn, Juan Jose Hinojosa Sur. Drk.
Humble O. & R. Co. No. 1 Anna Kelsy Bass, San Rafel Gr. 10¾-in. csg. 1,-207 ft.; T.D. 5,577 ft.; sh.&sd. strks; odor of oil; make D.S.T.

Jim Wells County

E. Calloway et al No. 1 E. O. Cook, Lavaca Grant Sur. S.D. 4,120 ft.
W. J. Coates No. 1 Lindsay & Reed, Lavaca Gr. T.D. 5,315 ft.; perf. csg. 5,-248-58 ft.; I.P. 172 B.P.D.; ¼-in. ck.
Conroe Drlg. Co. et al No. 1 Lindsay & Reed, Laguna Sur. T.D. 5,606 ft.; perf. csg. to test sd. 5,241-58 ft.
H. H. Howell et al No. 2 Lindsey, Lavaca Gr. T.D. 5,328 ft.; 7-in. csg. 5,-316 ft.
H. H. Howell No. 3 Lindsay et al, Lavaca Gr. Sur. Perf. csg. 5,288-5,312 ft.; comp.; I.P. 6 B.P.H.; ⅛-in. ck.
Humble O. & R. Co. No. 1 Tarrant, J. Poitevent Sur. 20-min. D.S.T. 5,213-19 ft.; recvd. S.W.; cg. ahead.
Magnolia Pet. Co. No. 1 Valades Hrs., La Anima Sola Gr. Drlg. sh. 4,810 ft.
Southern Minerals Oil Corp. No. 1 J. R. Trussells, Lavaca Gr. 10¾-in. csg. 540 ft.; S.D. 4,000 ft.

Kerr County

Edminston No. 1 Saul, Sur. 47. S.D. 55 ft.
H. C. Starcke No. 1-A Saue, T.W.N.G. R.R. Sur. Drlg. 30 ft.

Kimble County

C. A. Dawson et al No. 1 Wilkinson, Brook and Burleson Part., B.S.&F. Sur. No. 23. Drlg. 325 ft.

Kleberg County

Pure Oil Co. et al No. 1 State Ld., Tr. 68, Laguna Madre Bay, Lse. No. 528. 18⅝-in. csg. 198 ft.; drlg. sh. 2,610 ft.

La Salle County

Finley S. Ewing No. 1 Pugh, E. L. Garrett Sur. S.D. 780 ft.
Eugene Garner No. 1 Yeager, Lot 6, Wallace Subd. of Sur. No. 39. Cg. sh. 1,159 ft.

Lee County

Eleoussa Oil Co. No. 1 Sanders, J. Vin Roeder Sur. T.D. 4,398 ft., prep. to resume drlg.

Live Oak County

J. B. Chew No. 1 Cartwright, J. Poitevent Sur. No. 1. Drlg. sh. 1,009 ft.
Fant City Oil Co. No. 1 Alamo Lbr. Co., Rafel Alcantora Sur. No. 26. Drk.
R. H. Feltner No. 1 Reed, I.&G.N. R.R. Sur. 15. R.U.
Gilcrease Oil Co. No. 1 Brannan, B.S.& F. Sur. Cg. sh. 2,745 ft.
Holland Oil Co. No. 1 West Est., C. Q. Ragland Sur. 10¾-in. csg. 189 ft.; S.D. 202 ft.
V. G. Schimmel et al No. 1 Geo. West, G. L. Haas Sur. T.D. 210 ft.
Stewart Oil Co. No. 1 Nations, C Lots 792-793. Drlg. 500 ft.
B. W. Wine No. 1 Brenne, Wm. Kuykendall Sur. No. 4. Drlg. 700 ft.

McMullen County

N. V. Duncan No. 1 Nueces Ld. & Livestock Co., B.S.&F. Sur. No. 119. Drk.
R. C. Lipscomb No. 1 Shiner, sec. 54, Shiner ranch. Cd. oil sd. 1,365-70 ft.; tstg. 1,752 ft.; swbd. some oil; S.D.
S. M. Nesser No. 1 Franklin, J. Poitevent Sur. No. 33. Loc.
G. G. Newton No. 1 Bryne, Geo. Pettuck Sur. S.D. 977 ft.
Reynolds & Richardson No. 3 Shiner, Shumway Subd. of Shiner rnch. T.D. 2,524 ft.; abd.

Medina County

F. A. Brown No. 1 Senne, A.C.H.&B. Sur. 105. Logged 8 ft. of sat. oil sd. 802-11 ft.; (corrrected); T.D. 903 ft.; 6⅝-in. csg. 805 ft.
J. W. Cromwell No. 1 J. W. Tondre, I. J. Rogers Sur. T.D. 930 ft.; fsg.
D. K. J. Oil Co. No. 1 Burrell. T.D. 2,-039 ft.; S.D. after swbg. dry.
S. F. Ewing No. 2 Riff, J. Haby Sur. No. 42. Drlg. plug to test.
Gee Hayes et al No. 1 Conrad, J. Keppler Sur. Drlg. sh. 585 ft.
Schweirs et al No. 1 Schmidt, J. Brieden Sur. No. 273. Drlg. 500 ft.
Taylor & Pepper No. 1 Saathoff, Peter Eichorn Sur. Drlg. sh. 390 ft.
J. R. Trentman et al No. 1 Carle Merc. Co., V. A. Johnson Sur. T.D. 1,905 ft.; 7-in. csg. 1,835 ft.; csg. split; prep. to sqze. split with cmt.; abd.
M. L. Walker No. 1 Zuberbulen, A. Bonamy Sur. R.U.; S.D.
Ziegler et al No. 1 Wiemers, F. Thurmm Sur. Loc.

Milam County

Clark & Morgan No. 1 Johnson, Juan Jose Acosta Sur. S.D. 1,690 ft.
Texedo Oil Co. No. 1 Graham, Charles Cornea Sur. Logged S.O. 1,135-36 ft.; cg. Edw. L. 1,809 ft.
Texedo Oil Co. No. 1 Paul Garves, C. Robertson Sur. S.D. 1,170 ft.; C.O., set 7-in. csg. 1,167 ft.

Nueces County

Coast Line Oil Co. No. 1 State (Redfish Bay), State Tr. No. 32. Logged 7,338-56 ft.; cg. 8,620 ft.
J. W. Cosner No. 1 LaPrelle, Robert White Subd. of Hoffman Petronellia rnch. 10-in. csg. 1,010 ft.; cg. sh. 5,-101 ft.; no report.

Refugio County

I. J. Allen et al No. 1 Rooke, Jose Miquel Aldrite & Jose Maria Aldrite 4½ Lge. Drlg. sh. 4,010 ft.

San Patricio County

Atlantic Ref. Co. No. 1 Jones, sec. 72, G. H. Paul Subd. of Coleman-Fulton Pasture Lds. Drlg. sh. 5,465 ft.
A. L. Bob No. 2 Green, T. T. Williamson Sur. S.D. 7,100 ft.
Humble O. & R. Co. No. 1 T. J. Carmody, sec. 22, Third Addn. of Taft farm lands. Drk.

Starr County

O. C. Borah No. 1 P. G. Garcia, Juan Salinas Sur. S.D. 563 ft.
O. C. Borah No. 1 Martinez, Joaquin Salinas Sur. S.D. 370 ft.
O. C. Borah No. 2 Martinez, J. Salinas Sur. S.D. 455 ft.
Lee Davis et al No. 1 Garza, Jose Salvador De La Garza, Porc. 88. Drlg. sh. 2,030 ft.
G. E. Dodd No. 1-A Wood, V. Vela Sur. No. 84. S.D. 1,540 ft.
Sioux Oil Co. No. 7 Ricaby, Porc. 83 T.D. 1,403 ft.; 7-in. csg. 1,393 ft.
Sun Oil Co. No. 1 Smith, A. J. Smith Sur. Loc.
Sun Oil Co. No. 1 Young, J. Sisneros Sur. No. 79. T.D. 3,008 ft.; 5½-in. csg. 2,765 ft.
Wheelock & Collins No. 1-A Guerra, Santa Cruz Gr. Drlg. sh. 4,850 ft.
W. W. Zimmerman et al No. 1 Starr Co. Cattle Co., Juan De La Garza, Porc. 89. Loc.

Travis County

John R. Sterrett No. 1 Washington, Jose Antonio Navarro Sur. Cg. 1,294 ft.
R. F. C. Oil Co. No. 1 Jones, Reuben Hornsby Sur. No. 17. Drlg. sh. 800 ft.
I. Ripp No. 1 Thaxton, Santiago De Valle Gr. S.D. 670 ft.
Texas Empire Trading Co. No. 1 E. F. Jourdan, Santigo De Valle Gr. 5½-in. csg. 611 ft.; S.D. 711 ft.

Victoria County

Superior Oil Co. No. 1 A. R. Robertson, C Lot 10, Blk. R, Allison Richey Subd. R.U.

Webb County

R. S. Boling No. 1 Frost Natl. Bnk., E. L.&R.R. Sur. 596. R.U.
C. C. Bonner No. 1 Lewis, W. P. Rutledge Sur. 460. Cg. sh. 2,034 ft.; no report.
Garrison & Paris No. 1 Benavides, Hale Subd. of M. Arispe Gr., C Blk. 107. Drk.
O. W. Killam No. 1 Cuellar, Josefa Cuella Sur. R.U.
E. J. Sawyer No. 1 Garcia-Villareal, J. M. Garcia Sur. T.D. 2,478 ft.; brkn. sd.; oil show; S.D.

Willacy County

Continental Oil Co. No. 2 Garcia Ld. Co., Blk. 118. Cg. sdy. sh. 9,703 ft.

Williamson County

Fritz Fuchs No. 1 Bachmeyer, H. White Sur. No. 3. Drlg. 1,100 ft.
Marion Aldridge No. 1 Kroschewsky, 7-in. csg. 969 ft.; T.D. 1,084 ft. (corrected); acdzd.; swbg. brksh. wtr.

Wilson County

Stapper Oil Co. No. 1 J. McDaniel, L. Manchoca Sur. S.D. 933 ft.

Zapata County

R. B. Bryant No. 1 Flores, La. Huerta Sur. T.D. 1,556 ft.; stk. D.P.; jnkd. hole; skd. drk. 45 ft. north; S.D. 3,-113 ft.

EAST TEXAS

(Border counties)

Rodessa—Cass County

Red Iron Drlg. Co. No. 1 Echols, Myers Sur. Drk.

Bowie County

King Oil Corp. No. 1 Watts, Geo. Brinlee Sur. T.D. 4,574 ft.; prep. deepen.

Marion County—Rodessa

Ark-La. Gas Co. No. 1 Belcher, Coy Sur. Drlg. sh. 641 ft.
Ark.-La. Gas Co. No. 3 Holland, Hanks Sur. Cg. L.&sh. 6,018 ft.
T. Bell et al No. 1 Moseley, D. Lane Sur. T.D. 2,524 ft.; reconditioning hole.
Gulf Oil Corp. No. 1 Smith, Hanks Sur Set 5-in. csg. 6,068 ft.; T.D. 6,068 ft. perf. 6,058-66 ft.; D.S.T. 6,040-66 ft.; rec. 300 ft. oil and 186 ft. S.W.; 42 min.; sqzd. off; W.O.C.
Holcomb & Thomason No. 1 Bramlett, 245 ft. S line, 20-ac. lse., 400 ft. E line, Gentry Sur. Drlg. rd. bds. 4,140 ft.
Holcomb & Thomason No. 2-B Henderson, Ewing Sur. Set 5½-in. at 6,000 ft.; T.D. 6,030 ft.; comp.; 10 B.P.H.; ¼-in. ck.; T.P. 600 lbs.; C.P. 700 lbs.
Hollandsworth Drlg. Co. No. 1 Brantley, Bennington Sur. Set 5-in. csg. 5,986 ft.; comp.; 343 B.P.D.; ¼-in. ck.; T.D. 6,017 ft.; T.P. 325 lbs.; C.P. 825 lbs.
Hollandsworth Drlg. Co. No. 1 Hurst, Hanks Sur. Drlg. L.&sh. 3,862 ft.
Illinois Pet. Co. No. 1 Hale, Hanks Sur. Drlg. sh.&L. 5,941 ft.
Sam Killingsworth No. 1 McReynolds, 5-ac. lse., Coy Sur. R.U.
Ohio Oil Co. No. 2 Moseley, Francis Sur Rng. csg.; T.D. 6,117 ft.; comp.; 393 B.P.D.; ¼-in. ck.; T.P. 450 lbs.; C.P. 1,050 lbs.; gas-oil ratio 447-1; set 7-in. csg. 6,095 ft.
Ohio Oil Co. No. 3 Moseley, Francis Sur. R.U.
Phillips Pet. Co. No. 1 Beard, Bennington Sur. Set 7-in. csg. 6,088 ft.; T.D. 6,100 ft.; perf. 6,019-29 ft.; swbg. small S.O.; drld. out plug at 6,075 ft.; acid. with 2,000 gals.; tstd. 2 B.P.H. with much gas.; perf. 5,982-93 ft. and 6,000-6,008 ft.; swbg.; T.D. 6,075 ft.; comp.; 103 B.P.D. on ¼-in. ck.
Phillips Pet. Co. No. 2 Denton, Coy Sur. Set 10¾-in. csg. at 1,055 ft.
Phillips Pet. Co. No. 1 Jackson, Hanks Sur. Drlg. sh. 405 ft.
Shell Pet. Corp. No. 1-C Henderson, Bennington Sur. Drlg. L. 3,263 ft.
Shell Pet. Corp. No. 2-B Henderson, Bennington Sur. Set 5-in. csg. 6,016 ft.; T.D. 6,020 ft.; comp.; 10 B.P.H.; ⅛-in. ck.; T.P. 500 lbs.; C.P. 650 lbs.; perf. 5,995-6,018 ft.
Shell Pet. Corp. No. 2 Schulter, Smith Sur. T.D. 6,024 ft.; set 5-in. csg. 6,-021 ft.
Shell Pet. Corp. No. 3 Schulter, S. Smith Sur. Drlg. anhy. 5,584 ft.
Union Prod. Co. No. 8 Hutchinson, Cox Sur. Comp.; 460 B.P.D.; ¼-in. ck.; T.P. 425 lbs.; C.P. 1,200 lbs.; set 7-in. csg. 6,114 ft.; T.D. 6,151 ft.

Panola County

Texas Co. No. 1 Claude Adams, T. Cox Sur. Set 9⅝-in. csg.; drlg. 7,663 ft.

Sabine County

Pet. Heat & Power Co. No. 1 Jasper State Bnk., McDonald Sur. Spdg.

Shelby County

Center Oil Co. No. 1 Windham, A. H. English Sur. T.D. 3,422 ft.; set 6⅝-in. csg.
Mallard & Locke No. 1 W. E. Roller Est., Sullins Sur. Drlg. sh. 2,861 ft.
W. A. Reddit No. 2 Pickering Lbr. Co., P. J. Loggins Sur. M.I.M.

WEST TEXAS WILDCATS

Andrews County

Atlantic Ref. Co. No. 1 Texas Univ., sec. 26, Blk. 11, University Lands. Tstg. 3,283 ft.
H. S. Forgerson No. 1 Lockhart-Brown. Tstg. csg. 4,307 ft.
Perkins, Wright & McMillan No. 1 Cowden. W.O.C. 8,004 ft.
Rhodes & Tompkins No. 1 Emma Cowden, sec. 1, Blk. 44, T.&P. Sur. Drlg. 3,384 ft.
Rogers & Rogers No. 1 O. B. Holt, P.S.L. Sur. Tstg. 4,511 ft.; last report.
Seaboard Oil Corp. No. 1 Munger-Nix, sec. 1, Blk. A-4, P.S.L. Sur. S.D. 4,526 ft.
Seaboard Oil Corp. No. 1 Thornberry, sec. 8, Blk. 42-A, P.S.L. Sur. Last report.
H. C. Wheeler No. 1 T. M. Gardner, sec. 15, Blk. A-35, P.S.L. Sur. D.&A. 4,647 ft.

Bailey County

Duffey & Etz No. 1 Enochs, Tract 66, League 182, Floyd Co. School Lands Sur. S.D.O. 4,306 ft.

Brewster County

H. D. Wilcox No. 1 Kokernot, sec. 12, Blk. C, J. V. Massey Sur. S.D.R. 1,871 ft.

Cochran County

Devonian-Honolulu-Cascade No. 1-C-8 Duggan, sec. 8, Oldham C.S.L. Sur. Drlg. 4,740 ft.
Helmerich & Payne No. 1 Westheimer & Daube, Lab. 14, Leg. 147. D.&A. 5,205 ft.
Honolulu Oil Co. No. 1-91 C. S. Dean, League 91, Lipscomb C.S.L. Sur. S.D. W.O. 5,067 ft.
Texas Co. No. 1 Mallett Ld. & Cattle Co., sec. 7, Blk. G, P.S.L. Sur. Swabbed 7 B.F.P.H. 5,058 ft.

Coke County

H. E. Ogden No. 1 Rawlins, sec. 390, Blk. 1-A. Drlg. 3,490 ft.
Barnett Pet. Co. No. 1 J. R. Mims, sec. 39, Blk. W, T.&P. Sur. S.D. 1,861 ft.

Crane County

Gulf Oil Corp. No. 4 McKnight, sec. 3, Blk. B-21, P.S.L. Sur. Drlg. 3,099 ft.

Crockett County

H. W. Black & Eubank Oil No. 1 University, sec. 13, Blk. 14, University Sur. Tstg. 1,425 ft.
Choate & Hogan No. 1-H University, Univ. Sur., sec. 14, Blk. 14. C.O.; S.O. 1,376 ft.
Choate & Hogan No. 1-J University, sec. 15, Blk. 14, University Sur. Pump 30 B.O.P.D. 1,450 ft.
Short & Gillette No. 1 J. W. Owens, Jose Zunegas Sur. Drlg. 650 ft.

Culberson County

Harry J. W. Nichaus No. 1 C. M. Caldwell, sec. 15, Blk. 109, P.S.L. Sur. Drlg. 2,245 ft.
S. J. Isaacs No. 1 L. G. Sheddan, sec. 25, Blk. 52, P.S.L. Sur. Spd. and S.D.
Quito Oil Co. No. 1 Cameron Lbr. Co., sec. 24, Blk. 81, P.S.L. Sur. Drlg. 468 ft.

Dickens County

J. F. Marrisey No. 1 I. J. McMahan, sec. 319, Blk. 1, H.&G.N. Sur. S.D. 1,050 ft.

Ector County

Stogner et al No. 1 Hendrick, sec. 4, Blk. 43, T.&P. Sur. Drlg. 3,470 ft.

El Paso County

Tri-State Oil Co. No. 1 Kinkel. Tstg. wtr. shut off 3,571 ft.

Fisher County

S. & D. Daube and Forest Dev. Co. No. 1 A. C. Bennett, sec. 51, Blk. 2, H.& T.C. Sur. Drlg. 2,481 ft.

Floyd County

Mills Bennett No. 1 T. Montgomery, F. J. Latham Sur., 6 mi. S of Floydada. Rng. whipstock 5,014 ft.; last report.

Gaines County

C. M. Cope et al No. 1 Riley, Blk. G, sec. 249, W.H.R.R. Sur. Comp., 135 B.O.P.D.
Eastland Oil Co. No. 1 R. C. Dunbar, sec. 24, Blk. A-12, P.S.L. Sur. Fsg. csg.
Riddle & Warr No. 1 J. B. Brown et al, sec. 26, Blk. G, C.&M.R.R. Sur. Cellar.

Garza County

Gulf Oil Corp. No. 1 Swanson, sec. 25, Blk. 2, H.&G.N. Sur. Drlg. 5,332 ft.

Glasscock County

O. B. Greathouse No. 1 Burns, sec. 221, Blk. 29, W.&N.W. Sur. S.D. 180 ft.

Hockley County

Gulf Oil Corp. No. 1 Mallett Ld. & Cattle Co., sec. 6, Blk. X, P.S.L. Sur. P.B. 5,036 ft.; pump 28 B.O.P.D.; tstg. 5,036 ft.
Skelly Oil Co. No. 1 Elwood Est., Howard C.S.L. Sur., Lge. 15. Loc.

Howard County

Lockhart Oil Co. No. 1 Scott, sec. 86, Blk. 29, W.&N.W. Sur. C.O. 2.865 ft.
Magnolia Pet. Co. No. 5 O'Daniel, sec. 34, Blk. 30, T.&P. Sur. W.O. 7-in. 2,505 ft.
T. G. Shaw No. 1 H. N. Wilkerson, sec. 35, Blk. A, Bauer & Cockrell Sur. Loc.

Hudspeth County

Haymon Krupp Oil & Ld. Co. No. 1 Thaxton, SE¼ sec. 34, Blk. 74, Twp. 6. W.O.C. 4,501 ft.
Haymon Krupp No. 1 Briggs, sec. 24, Blk. 73, Twp. 7, T.&P. Sur. Tstg. 4,115 ft.

Jeff Davis County

Joiner Oil Corp. No. 1 Jones-Coffield Prep. U.R. 3,702 ft.

Lynn County

John L. Baldridge No. 1 Alma Lbr. Co., sec. 151, H.E.&W.T. Sur. Drlg. plug 4,450 ft.

Martin County

W. D. Anderson No. 1 J. R. Vance, sec. 9, Blk. 36, T.&P. Sur. U.R. 1,000 ft.

Menard County

C. D. Haggerty No. 1 Callon, sec. 36, Jim Franz Sur. Drlg. 830 ft.
Hartzell-Nawn & O'Hara No. 1 Wilhelm, sec. 24, Blk. A-1735, Indianola R.R. Sur. S.D.O. 655 ft.

Pecos County

Cox & Moore No. 1 White & Baker, sec 43, Blk. Z, T.C.R.R. Sur. S.D. csg. 407 ft.
Ed Fainey No. 1 Trees, sec. 63, Blk. 8, H.&G.N. Sur. Rebldg. drk.; T.D. 2,055 ft.
J. D. Kugle, Jr., No. 1 W. C. Jackson, sec. 120, Blk. 8, H.&G.N. Sur. Fsg. tools 2,100 ft.
Magnolia Pet. Co. No. 1 McKee. M.I.R. 6,165 ft.
E R. Minshall et al No. 1 Haynie, sec. 28, Blk. 146, T.&St. L. Sur. Drlg. 1,725 ft.
S. Thompson No. 1 Elsinore Cattle Co., sec. 54, Blk. D, G.C.&S.F. Sur. S.D. 7,212 ft.
Trans-Pecos Oil Co. No. 1 Gallagher. T.&P. Sur. S.D. 2,240 ft.
Trans-Pecos Oil Co. No. 3-A Papham, G.H.&S.A. Sur. S.D. 2,015 ft.; last report.

Presidio County

L. C. Brite No. 4 fee, C NW¼ sec. 113, Blk. 12, G.H.&S.A. Sur. S.D.O. 5,427 ft.

Reeves County

Grisham Hunter Corp. & N. A. Grisham No. 1 Geo. Daniel, sec. 40, Blk. 58, T.&P. Sur. S.D.R. 4,271 ft.
Ohio Oil Co. No. 1 Papham, sec. 18, Blk. 54, T.&P. Sur. C.O. 2,380 ft.

Runnels County

Stevens & Glober No. 1 Fowler, sec. 150. E.I.R.R. Sur. S.G.; H.F.W. 1,085 ft.

Scurry County

Coffield & Guthrie No. 1 E. E. Spears et al, sec. 130, Blk. 97, H.&T.C. Sur. Fsg. 8-in. csg. 1,612 ft.
Robinson Drlg. Co. No. 1 Martin, sec. 147, H.&T.C. Sur. S.D.O. 3,515 ft.

Sterling County

Loffland Bros. & Moore Bros. No. 1 D. D. Parramore, sec. 23, Blk. 2, H.&T.C. Sur. Drlg. 2,490 ft.
J. W. Sward No. 1 Brennand, sec. 107, Blk. 2, H.&T.C. Sur. Lowering 8¼-in. 1,440 ft.
W.F.W. Oil Co. et al No. 1 R. W. Foster, sec. 9, Blk. 13, S.P.R.R. Sur. M.I.M.

Stonewall County

Bert Fields No. 1 J. M. Lee, J. E. Pierson Sur. Drlg. 250 ft.
General Crude Oil Co. No. 1 J. D. Smith, sec. 371, Blk. 2, H.&T.C. Sur., 12 mi. N Rotan. Drlg. 4,184 ft.
Swanson & Parriott No. 1 H. T. Carlisle, sec. 293, Blk. D, H.&T.C. Sur. Drlg. 4,470 ft.

Terry County

L. E. Hults No. 1 P. J. Ross, sec. 6 Blk. D-14, C.&M.R.R. Sur. Drlg. plug 4,765 ft.

Tom Green County

Humble O. & R. Co. No. 1 Lewis & Wardlaw, sec. 5, Blk. 17, H.&T.C. Sur. Rng. electrical survey 7,586 ft.; last report.
Spinner No. 1 Reed, Mason Ferry Ranch. Sur. Fsg. 4,495 ft.

Upton County

W. D. Riser et al No. 1 King Ranch Oil & Lignite Co., sec. 8, Blk. 3, M.K.&T. Sur. S.D. 730 ft.

Val Verde County

J. F. Carter et al No. 1 Seller & Sons, sec. 34, Blk. A, I.&G.N. Sur. Spd. and S.D. (last report).

Ward County

M. J. Delaney No. 1 J. E. Cooper, H.&T.C. Sur. Tstg. 2,092 ft. (last report).
J. E. Fitzpatrick et al No. 1 F. K. Dyer, sec. 135, Blk. 34, H.&T.C. Sur. Drlg. 4,975 ft.
Hoss & Downey No. 1 Ross Avery, sec. 36, Blk. 1, H.&T.C. Sur. S.D. 2,000 ft.
John Poindexter No. 1 V. Meyers, sec. 17, Blk. 32, H.&T.C. Sur. Drk.
S. J. Rixford No. 1 W. B. Crump, sec. 2, Blk. 34, H.&T.C. Sur. Drlg. 300 ft.
O. E. Schkode No. 1 Boogher, sec. 1, Blk. 32, H.&T.C. Sur. S.D. 2,108 ft.; S.I. storage full 2,078 ft.; C.O. 2,105 ft.
Texas Co. No. 1-F Univ., Univ. Sur., Blk. 16, sec. 15. Drlg. 3,022 ft.

Winkler County

Ed. L. Gelder No. 1 R. D. Kessler & F. Kessler, sec. 14, Blk. B-3, P.S.L. Sur. Est. 20 B.O.P.D. 3,152-97 ft.
Magnolia Pet. Co. No. 13 State-Walton, sec. 14, Blk. B-3, P.S.L. Sur. Rng. 10-in. 1,070 ft.

Yoakum County

Gulf No. 1 J. C. Futch, sec. 796, Blk. D. J. H. Gibson Sur. Est. 425 B.O.P.D.; T.D. 5,160 ft.
Helmerich & Payne No. 1 S. O'Dowd, sec. 896, Blk. D. J. H. Gibson Sur. R.U.R. 4,955 ft.

E. C. TEXAS WILDCATS

Angelina County

Ginter Bros. No. 4 Copes Heirs, J. Morin Sur., 3 mi. S of Diboll. R.U.M.
K. L. McHenery No. 1 L. Henderson, Wm. White Sur., 1 mi. E of Hamlet. Loc.

Camp County

W. C. McGlothlin No. 1 Joe Venters, S. Wright Sur., 3 mi. SE of Leesburgh. Drlg. 4,576 ft.

Cherokee County

J. G. Mayo No. 1 Travis, T. Quevada Sur., 2 mi. SE of Mt. Selmon. Drlg. 2,050 ft.

Dallas County

Plaza Oil Co. No. 1 Davidson Marchants Sur., 1 mi. NW of Seagoville. Cg. 2,783 ft.

Ellis County

Julian Ivy No. 1 Sadie Serf, C. J. Chambers Sur., 6 mi. E of Alma. D.&A. 800 ft.

Gregg County

Humble O. & R. Co. & Gulf Oil Corp. No. 1 E. Robertson, M. Mann Sur., 2½ mi. SW of Longview Trinity test. Elev. 272 ft.; P.B. W.O.C. 2,892 ft.

Henderson County

Hager & Jones No. 1 Coleman & Faulk, R. S. Rayburn Sur., 2 mi. NW of La Rue. D.&A. 3,423 ft.
Jones-Mallory No. 1 A. Mallory, T. S. Mitchell Sur., 6 mi. SW of Mabank. S.D. 107 ft.
L. Johnson No. 1 J. L. and W. D. Coffee, S. Whitley Sur., 5 mi. SW of Paynes. D.&A. 3,495 ft.
Richards & Holloway No. 1 J. P. and T. Tarkington, W. Kenewell Sur., SE of Flag Lake. Drlg. 1,850 ft.

Houston County

Humble O. & R. Co. No. 1 Daily & Taylor, J. G. Thompson Sur. W.O.C. 1,745 ft.
Sun Oil Co. No. 1 R. S. and H. H. Daily, J. G. Thompson Sur., 3 mi. SE of Navarro Crossing. C.O. 5 B.O.P.H.

Lamar County

Dahl & Barr No. 1 Lewis & McQuiston, R. Russell Sur., 1 mi. NE of Paris. Drlg. 1,089 ft.

Leon County

Lone Star Gasoline No. 2 G. W. Lee, R. Hunter Sur., 5 mi. SE of Buffalo gas area. Loc.

Limestone County

J. S. Cosden, Jr. No. 1 J. J. Bower, J. Breeding Sur., near Prairie Hill. Drlg. 1,011 ft.

McLennan County

A. C. Kilgore No. 1 Hanzelka, 4 mi. E of town in NE cor. cty. S.D. 450 ft.
Kilgore No. 1 J. M. Marrs, J. S. Rutland Sur., 2 mi. S of Bosque. S.D. 1,455 ft.; last report.
Lisle Steele No. 1 C. H. Cherry, M. Martinez Sur., 4½ mi. SE of Waco. W.O.C. 40 ft.
Russell & Thompson No. 1 L. L. Phillips, C. O. Campo Sur., 4 mi. S of Waco. S.D. 849 ft.

Madison County

C. K. Handy No. 1 D. G. Cannon, D. Arriola Sur., 6 mi. NW of Madisonville. Drlg. 451 ft.

Navarro County

J. O. Griffiths No. 1 Haynes, Able Parsons Sur., 4 mi. NE of Kerens. M.I.M.
Mrs. Jane Robinson No. 1 Fortson Bros., Eli Smith Sur., 5 mi. NE Corsicana. S.D. 2,765 ft.
Ivy Sitton No. 1 W. N. Marshall, E. J. Chambers Sur., 4 mi. NE of Rice. Deepening from 694 ft.

Red River County

Daniels et al No. 1 J. J. Gaston, J. Guest Sur., 2 mi. S of Detroit. W.O.C. 21 ft.
Texas Trading Co. No. 2 So. Pine Lbr. Co., D. D. Bruton Sur., 12 mi. N of Clarksville. Rng. csg. 2,154 ft.
Walters et al No. 1 Phamplin, W. Moore Sur., 3 mi. SE of Kanawha in NW part of county. S.D. 68 ft.
C. E. Whitehead No. 1 R. H. Ringwald, A. Moore Sur., 1 mi. NW of Manchester. S.D. 50 ft.

Rusk County

J. W. Merrick et al No. 1 Peter Tipps, T. Uzzell Sur., 6 mi. S of East Texas field and 5 mi. N of New Salem. Deepening from 3,888 ft.; S.D.W.O. 3,983 ft.

Smith County

H. L. Hunt et al No. 1 S. H. Bradly, T. P. Payne Sur., 10 mi. E of Tyler at Chappel Hill. Tstg. 7,528 ft.

Titus County

L. Umbernhour No. 1 Sykes, J. Mathews Sur., 1 mi. N of Winfield. O.T.D. 3,888 ft.; prep. deepen.

Trinity County

Boone & Jordan No. 1 U. S. Crouch, Joel Clapp Sur., 7 mi. N of Trinity. W.O.C. 200 ft.
Gassage et al No. 1 Mrs. C. H. Elliot, Joel Clapp Sur., 6½ mi. N of Trinity. Drk.

Upshur County

E. J. Dupree No. 1 W. A. Lawrence, R. Polly Sur., 4 mi. S of Gilmer. S.D.W.O. 4,308 ft.
Tom Hunter and American Liberty No. 1 J. P. Carter, J. H. Fields Sur. Drlg. 9,355 ft.

Van Zandt County

Richards & Holloway No. 1 Chitty, 1 mi. SW of Jackson. D.&A. 4,556 ft.

NORTH TEXAS WILDCATS

Archer County

Adams O. & G. Co. No. 1 C. Moer, sec. 21, C.&P. Sur., Blk. 3. S.S.O. 4,135-65 ft.; tstg.
Burns & Omohundro No. 1 Dr. A. B. Edwards, Blk. 44, L. P. Hunt Subd., 5,300-ft. test. 10-in. 123 ft.; drlg. 2,538 ft.
Fain-McGaha Oil Corp. No. 1 R. W. Fuller, Blk. 1, H.&T.C. Sur., 6,000-ft. test. 6⅝-in. 5,105 ft.; bk. sat. L. 5,109-36 ft.; swbg. hole and showing oil and gas; will treat with acid; mov. in spudder to deepen.; est. 50 bbls.
Gray & Thweatt No. 1 Ferguson, sec 2, S.P.R.R. Co. Sur. No. A-968. Drlg. 2,262 ft.
Hanlon & Buchanan, Inc., No. 1 Ware, sec. 38, Cherokee Co. Sch. Ld. Drlg. 2,300 ft.
Harvey Drlg. Co. No. 1 J. J. Perkins, sec. 7, A.N.T.C.L. Sur. Drlg. 4,475 ft.
Helmerich & Payne et al No. 2 L. F. Wilson, Blk. 25, A.T.N.C.L. Sur. Testing at 5,105-16 ft.
Hines & Hancock No. 1 W. R. Hammond, H. Corzine Sur. A-56. Drlg. 3,460 ft.
F. J. Hynes No. 1 J. C. Arthur, sec. 3, G.H.&H. Sur. No. A-158. Drlg. 3,960 ft.
Frank King No. 1 Anita Koenig et al, S.F. Moseley Sur. No. A-297. Loc.
Louis Sikes et al No. 1 Ford, T. M. Cecil Sur. A-982. 4,500-ft. test; tstg.; 6⅝-in. 4,170 ft.; W.O.S. and S.S.O. 4,123-67 ft.
Thos. A. Jirik No. 1 Kunkel, sec. 2, P.R.R. Sur. A-1186. 10-in. 200 ft.; W.O.S.R.
Lacreta Pet. Co. No. 1 L. H. Farmer, W. C. Winters Sur. A-663, 4,000-ft. test. Drk.
Reno Oil Co. No. 10 H. Wilmut A, sec. 4, S.P.R.R. Sur. A-1044. S.S.O. 3,760-66 ft.; 6⅝-in. 3,750 ft.; W.O.C.
Westmount Oil Co. No. 7 T. J. Dempsey-Denton Co. Sch. Ld., sec. 10. S.S.O. and S.L. 4,145-64 ft.; rng. Schlumberger.

Baylor County

Chatham & Harwell No. 1 Parker et al, sec. 3122, T.E.&L. Sur. Loc.
J. F. Morrisey Co. No. 1 Jno. White Est., sec. 2483, T.E.&L. Sur. 10-in. 100 ft.; W.O.R.
Riddels, Pipes & Holcomb No. 1 W. H. Nichols, Jr., sec. 117, B.B.B.&C. Sur. A-85. Loc.
Wilcox O. & G. Co. No. 1 W. H. Portwood, sec. 3144, T.E.&L. Sur. Drlg. 2,050 ft.

Clay County

Walter Gant No. 1 Bryant Edwards, S. C. Beldon Sur. A-12, 6,000-ft. test. Drlg. 4,890 ft.
Joe Rogers No. 1 C. P. Davis, Blk. 6, Montague Co. School Land Sur. A-307, 4,500-ft. test. Spud. and S.D.
Wood Pet. & Roy. Corp. No. 1 I. H. Kempner, Blk. 44, Bosque Co. Sch. Ld. Sur. A-10. S.D.O. 2,330 ft.

Cooke County

Sinclair Prairie Oil Co. No. 1 J. M. Best. T. Toby Sur. A-1054. 9⅝-inch 4,875 ft.; O.S. 4,887-95 ft.; swabbed 30 bbls. per hr.

Denton County

L. & E. Oil Co. No. 1 J. Hancock Life Ins. Co., J. Thomas Sur. Drlg. 3,900 ft.

Foard County

Ed S. Smith No. 1 Worsham, J. M. Clay Sur. Loc.

Jack County

Noah Daves No. 1 K. D. Baker, sec. 2709. T.E.&L. Sur. 4,000-ft. test; drlg. 1,900 635 ft.; test L. 2,594-2,635 ft.; tstg.
Harper Pet. Co. 1 Mary E. Norman. A. Pearson Sur. A-1304. O.S. 1,937-38 ft.; testing.

Montague County

Humble O. & R. Co. No. 1 E. G. Adams et al, I. H. Meeks Sur. A-506. Loc.
H. H. Powell No. 1 Arch Durham, W. J. Wagoner Sur. A-936. S.D. 822 ft.
J. W. Sorrell et al No. 1 J. E. Walthall, Sam H. Smith Sur. A-662. S.D. 3,777 ft.

Wichita County

C. W. Boller No. 1 S. Y. Collins, Charles Roberts Sur. A-540. 6⅝-in. 3,355 ft.; brkn. sdy. L. and O.S. 3,860-3,900 ft.; testing.
Geo. W. Cooper No. 1 Parker, sec. 13, H.&G.N. Sur. 6⅝-in. 2,594 ft.; P.B. 2,-635 ft.; test L. 2,594-2,635 ft.; tstg.
Madden & Goldsmith No. 1 Jackson, Blk. 20, Denton Co. Sch. Lds. S.D.O. 4,505 ft.
Shell Pet. Co. No. 1 Reilly, F. Jordan Sur., Abst. 167. 6⅝-in. 3,815 ft.; P.B. 3,880 ft., tstg. 100 bbls. per day.
E. J. Stump No. 1 F. C. Dodson, J. Deck Sur. A-52. R.U.R. and S.D.

Wilbarger County

Lloyd Brown No. 1 W. T. Waggoner, sec. 27, H.&T.C. Sur., Blk. 6. Loc.

Young County

Byars & King No. 1 Street, sec. 303, T.E.&L. Sur. Drlg. 4,280 ft.
Cosden Oil Co. No. 1 Price, Y.C.S.L. Sur. No. A-1285. Drlg. 2,980 ft.
Cosden Pet. Corp. No. 1 D. R. Sewell B, J. Bray Sur. A-1949. 6⅝-in. 3,774 ft.; W.O.C.
N. B. Crenshaw No. 1 J. C. Dwight, sec. 1442, T.E.&L. Sur. Drlg. 3,700 ft.
Horwitz & Oldom No. 1 C. J. Taach B, sec. 248, T.E.&L. Sur. Drlg. 445 ft.

RANGER (CENTRAL TEXAS) DISTRICT

Callahan County

Cooper, Weeks & Hughes No. 1 C. D. Straley, 660 ft. from W L, 1,880 ft. from N L, sec. 370, Geo. W. Denton Sur. Ordovician test; set 7-in. and cmt. 4,200 ft.; rig spudder.
Joe Gallagher No. 1 W. T. Harris, 200 ft. from S line, 1,050 ft. from E line sec. 347, G. W. Denton Sur. 2,000-ft. test, 5 mi. N Oplin. S.S.O. 855 ft.; drlg.
J. H. Howell No. 1 E. I. Vestal, 1,149 ft. E line, 1,000 ft. N line, Jesse Dyson Sur., 2 mi. NE Cross Plains, rotary to 4,000 ft. Surf. to 100 ft.; resumed, drlg. 1,800 ft.
J. C. Jackson et al No. 1 Thompson, 2 mi. S. Eula, sec. 30, B.B.B.&C. Sur. S.D. 1,803 ft.; drlg. 2,390 ft.
Petroleum Drlg. Co. No. 1 Cook & Jordan, 760 ft. from E L, 1,838 ft. from N L, sec. 350, Geo. Hancock Sur. Ordovician. Drlg. 3,700 ft.
Wittmer Oil & Gas Properties, Inc. No. 1 R. D. Williams et al, 300 ft. from N line, 467 ft. from W line sec. 2,269, T.E.&L. Sur., 2 mi. NE Putnam, 4,500-ft. test. Set 12½-in. at 1,048 ft.; show oil 1,795 1,803 ft.; set 10-in. 2,556 ft.; S.O. in Ellenburger 4,077 ft.; drl. sulf. wtr. 4,115 ft., T.D.; P.B.; shot 290 qts. 3,239-3,435 ft.; est. 50 B.W. and 10 B.O.P.D.; to acidize.

Coleman County

Anzac Oil Corp. et al No. 1 Sparkman, Samuel Crooks Sur. Drlg. 1,640 ft.
Anzac Oil Corp. No. 1 Burk, A. Williams Sur. Drlg. 220 ft.
F. L. and E. R. Cooper No. 1 W. R. Stockard, 330 ft. from NL, 330 ft. from WL, N½ SE¼ sec. 23, T.&N.O. Sur. Rotary to 3,650 ft.
S. M. Devine et al No. 1 Masterson, 2 mi. W of Burkett, Asa Wickson Sur. S.D. 2,000 ft.
Garrett Oil Co. No. 1 W. S. Smith et al, 4 mi. SE Coleman, J. Thiele Sur. 2,300-ft. test; T.D. 2,035 ft., show gas; set csg. and tstg.

Comanche County

N. D. Gallagher et al No. 1 Mrs. B. L. Terry, Desdemona pool, N. H. Kuykendall Sur. S.O. in Ellenburger; 5 gal. sulfur and salt water on D.S. test; S.D.O. 4,978 ft.

Eastland County

Dobbs Oil Co. No. 1 Greer, J. E. Hardy Sur., Ellenburger test. Drlg. 700 ft.
Dorothy Oil Co. No. 1 Mrs. J. L. Johnson, 1,000 ft. from S line, 1,080 from W line, E½ SW¼ sec. 29-4, H.&T.C. Sur. Rigging.
Hayner, Reaves & Hose No. 1 P. L. Larkin, 3 mi. NW Rising Star, 912 ft. from W line, 546 ft. from S line, NW¼, sec. 40-2, E.T.R.R. Sur. S.O. 2,525-53 ft. and 2,574-95 ft.; cmt. 7-in. 3,004 ft.; W.O.C.
Nell A. Moore No. 7 Holcomb Heirs, 970 ft. from W line and 600 ft. from N line, SW¼ 1-4, H.&T.C. Sur. Loc.

Fisher County

Forest Dev. Corp. & Daube No. 1 L. G. Bennett, 660 ft. from N and E lines, sec. 51-3, H.&T.C. Sur. Rotary to 4,500 ft.; 3 mi. SW of Rotan. Set 10-in. at 300 ft.; drlg. 2,770 ft.
Owens-Snebold & A. C. Varner No. 1 J. H. Millsap, 3,500-ft. wildcat, 2 mi. NW McCaulley, 330 SL 330 WL, sec. 61-2, H.&T.C. Sur. Drlg. 1,429 ft.

Haskell County

Algord Oil Co. No. 1 J. F. Jones, 330 ft. from S and W lines, E. T. Roche Sur. No. 4, Abst. 525. Loc.
Fain-McGaha Oil Corp. No. 1 T. G. Hendrick, C W½ sec. 104, Indianola Ry. Sur. Set 150 ft. of 12½-in.; S.S.G. 1,620-30 ft.; T.D. 2,686 ft.; P.B. to 2,684 ft.; testing.

Jones County

Brown Eagle & C. J. Kleiner No. 1 Sullivan Heirs, 330 ft. S&E of 200-ac. tract in S. Andrews Sur. 191. Drlg. 1,787 ft.; U.R. 6-in. to 2,200 ft.; to acidize; show oil 2,200-03 ft.; T.D. 2,223 ft.; testing.
Dunigan Bros. and Fred Hyer No. 1 Gaither, 4½ mi. N of Anson, sec. 38, B.B.B.&C. Sur. Tested ¼ bbl. oil per hr. 2,442-47 ft.; U.R. 8-in. to 2,492 ft.; H.F.W.
R. B. Farris No. 1 Chas. Donohoo, 220 ft. from S and E lines, N½ sec. 5, B.B.B. &C Sur. Spudded.
Humble No. 1 Riley Horton, 330 ft. from N line, 330 ft. from E line, sec. 40-18, T.&P. Sur. Drlg. 2,050 ft.
Humble No. 1 Dallas Joint Stock Land Bank, 990 ft. from W line, 4,458 ft. from S line of M. Fragosa Sur. 267. Loc.
Iron Mountain No. 1 D. J. Herbst, 5 mi. E Hamlin; 330 ft. from N and E Sub. 18, Austin Williams Sur. 339. Set 10-in. 2,245 ft.; wtr. 2,990-05 ft.; H.F.W. 3,150 ft.; drlg. 3,400 ft.

(Continued on Page 106)

Market Record of Active Oil Stocks

Compiled by Carl H. Pforzheimer & Co., 25 Broad Street, New York City, Member New York Stock Exchange and New York Curb Exchange

New York Stock Exchange

1938 High	1938 Low	Week ending June 4 Sales	High	Low	Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1937	1937 High	1937 Low	1936 High	1936 Low
72½	55	1,900	58⅜	55¼	58¼	Amerada Corp.	788,675	N.P.	50cQ	4-30-38	$2.00	114⅞	51½	125½	75
24	17⅜	4,500	21½	20	21½	Atlantic Refining	2,663,999	$25	25cQ	6-15-38	1.00	37	18	35⅛	26⅝
19	12½	1,200	14¾	13⅜	14¾	Barber Co.	387,149	$10	75c	12-16-37	1.00	43⅜	10⅛	38½	21
16⅜	10⅛	5,100	12¾	11⅝	12⅝	Barnsdall Oil Co.	2,250,344	$5	25cQ	5-2-38	1.00	35¼	10	28¼	14⅛
10½	7	7,000	8⅜	8	8¼	Consolidated Oil Corp.	13,919,417	N.P.	20cQ	5-14-38	.90	17⅞	7	17¼	11½
34⅝	21¼	5,700	26	23¾	26	Continental Oil of Delaware	4,682,583	$5	25cQ	6-30-38	1.50	49	24	44⅞	28⅛
8⅞	5	2,400	6⅛	5¾	6⅛	Houston Oil (new)	1,098,618	$25	....	10-17-30	....	17⅝	4¾	13⅞	6⅝
22⅝	12¼	1,800	15⅛	14¼	15⅛	Mid-Continent Petroleum	1,855,912	$10	25c	6-1-38	1.50	35⅝	14	30⅞	17¼
17¾	10⅝	3,300	13	10⅝	13	Mission Corporation	1,399,345	N.P.	1.00	6-29-38	1.25	34	15	29⅞	16¾
23	14⅛	3,000	15¼	14⅛	15¼	National Supply	382,591	$25	$2 pf.‡	12-22-37	(‡)	41⅝	17⅝	75½	19⅞
14⅞	9	4,600	9⅝	9	9¼	Ohio Oil Co.	6,563,377	N.P.	50c	12-15-37	1.00	22⅞	8	18	12⅛
15⅞	10¼	700	10⅝	10⅜	10⅝	Pacific Western Oil	1,000,000	N.P.	75c	12-15-37	.75	29¾	11¾	23½	11¾
9¼	7	No sales	..	..	..	Pan American Pet. & Trans.	4,702,945	$5	$1 •	12-21-37	1.00	17⅛	7	20⅝	12¼
42½	27¼	7,400	31½	30	31½	Phillips Petroleum	4,449,052	N.P.	50cQ	6-1-38	2.75	64	30⅛	52⅜	33⅛
20	15	1,900	17⅞	17¼	17⅞	Plymouth Oil Co.	1,029,800	$5	35cQ	3-31-38	1.65	29⅞	13	27¾	11⅞
13½	8¼	7,400	8⅞	8¼	8⅞	Pure Oil Co.	3,281,120	N.P.	25c	12-1-37	.25	24⅜	8¾	27⅞	16
7⅞	5	2,800	5⅛	5	5⅛	Richfield Oil Corp.	3,285,120	N.P.	25c	12-24-37	.25	6½	4⅛	..	..
27½	15½	600	19	16⅝	19	Seaboard Oil of Delaware	1,224,283	N.P.	25cQ	6-15-38	1.00	54⅛	16	44	30½
18¼	10	1,900	12⅛	11¼	12	Shell Union Oil	13,070,625	N.P.	50c	12-20-37	1.00	34¾	14⅞	28¼	14¾
34¾	18½	700	21	19½	21	Skelly Oil	1,003,949	$15	50c	12-15-37	1.50	60⅝	26½	47⅜	19½
16⅜	10¾	13,200	12⅝	12	12½	Socony-Vacuum	31.151.071	$15	25c	3-15-38	.80	23¼	13	17½	12½
33⅞	25⅛	6,500	27	26	27	Standard Oil of California	13,014,754	N.P.	35cQ†	6-15-38	2.00	50	27⅛	47⅝	35
35½	24¾	6,400	28⅜	27½	28⅛	Standard Oil (Indiana)	15,267,030	$25	25cQ	6-15-38	2.30	50	26½	48½	32¾
35½	32¼	No sales	..	..	..	Standard Oil of Kansas	112,837	$10	$5	12-20-37	5.00	43	30⅝	31	25
54⅛	39¾	10,600	46⅝	43¾	46¼	Standard Oil of New Jersey	25,856,081	$25	$1SA†	6-15-38	2.50	76	42	70⅜	51⅛
57⅞	45	400	49¼	49	49¼	Sun Oil	2,316,484	N.P.	25cQ	6-15-38	$1 & 8% Stk.	77½	44½	91	70
3⅜	1⅜	1,800	2⅛	2	2⅛	Superior Oil Corp.	1.388.079	$1	....	....	....	7⅜	1½	6¾	3
44⅞	32⅝	12,700	37½	34⅛	37¼	Texas Corp.	10,875,006	$25	50cQ	7-1-38	2.25	65⅛	34¾	55¼	28⅞
4⅞	2⅝	300	3⅛	3⅛	3⅛	Texas Gulf Producing Co.	888,135	N.P.	10c	12-23-37	.10	9⅝	2	8⅞	4⅜
10⅛	7	900	8½	7⅞	8½	Texas Pacific Coal & Oil	888,237	$10	10c	6-1-38	.40	16⅝	5⅜	15¼	7½
15½	10⅛	5,200	12½	11⅝	12½	Tide Water Associated	6,369,175	N.P.	25cQ	6-1-38	1.20	21⅝	13⅛	21⅜	14⅜
21⅝	17⅛	1,000	18⅜	17¾	18⅜	Union Oil of California	4,666,270	$25	30cQ	5-10-38	1.40	28¼	17½	28½	20⅝
23½	20	1,100	20¾	20¼	20¾	Union Tank Car Co.	1,200,000	N.P.	30cQ	6-1-38	1.60	31½	22	31⅝	22⅝
2¾	1⅝	100	2⅛	2⅛	2⅛	Wilcox Oil & Gas	424.839	$5	....	5-10-26	....	6¼	1¾	5¼	2¾

•Payable in 3½% notes. †Includes extras. ‡One-tenth share $2 preferred stock.

New York Curb Exchange

1938 High	1938 Low	Week ending June 4 Sales	High	Low	Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1937	1937 High	1937 Low	1936 High	1936 Low
9⅜	5	100	6⅝	6⅝	6⅝	American Republics Corp.	1,308,049	$10	30c	12-27-37	$0.40	10	6⅝	..	..
10¼	5⅛	1,100	5⅛	5⅛	5⅛	Bridgeport Machine Co.	260,000	N.P.	1.25	12-30-37	$2.00	21⅜	7	21	13¼
39	32½	50	33¾	33¾	33¾	Buckeye Pipe Line Co.	200,000	$50	50cQ	6-15-38	3.75	51½	36	50	39¾
110	97	100	99	99	99	Chesebrough Mfg. Co.	120,000	$25	$1.50Q†	6-27-38	7.00	123	95½	124¾	105
11	7¾	2,200	8¾	8¼	8¼	Cities Service (new)	37,804,394	N.P.	....	6-1-32	....	5⅜	1½	7⅜	3
2⅜	1	1,700	1	⅞	⅞	Cosden Petroleum	399,687	$1	....	....	....	5½	1½	4½	1½
27½	17½	900	19⅝	18⅞	19⅝	Creole Petroleum	6,974,356	$5	50cSA†	6-10-38	1.00	38¾	20¼	39	19⅞
8¾	5½	No sales	..	..	..	Darby Petroleum	351,390	$5	25cSA	7-15-38	.50	18⅝	6½	18⅛	9
3½	2	300	2¼	2⅛	2¼	Derby Oil & Refining	263,162	N.P.	....	....	....	8⅜	2¼	6¾	1⅞
31	22⅝	100	23	23	23	Eureka Pipe Line	50,000	$50	$1Q	5-2-38	4.00	47½	24½	47½	38½
42⅞	33	2,400	35⅞	33½	35⅞	Gulf Oil Corp.	9.076.202	$25	25cQ	4-1-38	1.00	63½	33	59	36
70	56	2,900	59½	57¼	59	Humble Oil & Refining	8,923,935	N.P.	37½c	7-1-38	2.00	87	54⅞	80	57
19½	15	2,800	16¾	15⅞	16¼	Imperial Oil of Canada	26,919,871	N.P.	62½cSA†‡	6-1-38	1.25	24¼	14½	24½	19¾
8¼	6⅝	No sales	..	..	..	Indiana Pipe Line	300,000	$10	30c	5-14-38	.80	15	5⅞	9¾	5½
31¼	23	3,400	25½	25	25	International Petroleum	14,247,088	N.P.	$1.25†‡	6-1-38	2.50	39½	23½	39⅝	32⅝
5	3¼	No sales	..	..	..	Kirby Petroleum Co.	500,000	$1	10c	4-15-38	....	8¾	2⅜	5¾	2⅝
25⅛	15⅝	1,500	20⅛	18¾	19⅝	Lion Oil Refining	434,820	N.P.	25cQ	4-20-38	1.50	34	12½	17¾	7⅜
9¼	6⅝	1,200	7¾	7½	7⅝	Lone Star Gas	5,382,723	N.P.	20c	4-20-38	.60	14¼	5¼	14¼	9⅞
9⅜	6½	1,700	7⅛	6⅝	6⅞	Louisiana Land & Exp.	3,000,000	N.P.	10cQ	6-15-38	.50	15¼	6¾	15⅜	9⅞
8½	6⅜	100	7	7	7	Midwest Oil Co.	998,444	$10	50c	6-15-38	1.00	14⅝	6¼	..	..
5⅝	4½	1,200	5	5	5	Mountain Producers	1,682,182	$10	30cSA	6-15-38	.60	7⅞	4⅛	8⅜	5
14⅝	12⅛	700	13¼	13⅛	13¼	National Fuel Gas	3,810,183	N.P.	25cQ	4-15-38	1.00	19½	12	23	17⅜
9¼	7⅜	100	7¾	7¾	7¾	National Transit	509,000	$12.50	35cSA	6-15-38	1.00	12½	7¼	15⅜	9¼
2⅝	1½	No sales	..	..	..	New Mexico and Arizona	1,000,000	$1	1c	12-1-36	....	5	1⅛	6⅝	1⅝
4½	4	No sales	..	..	..	New York Transit	100,000	$5	15c	4-15-38	1.00	5⅜	3⅞	6¼	4¼
6	4	No sales	..	..	..	Northern Pipe Line	120,000	$10	20c	6-1-38	1.00	12¾	5¾	9¾	4⅞
7⅜	3¾	11,200	4½	4⅛	4⅜	Pantepec Oil	1,608,700	N.P.	....	.....	....	9⅝	2¾	10⅛	3¼
3½	1⅝	400	1⅞	1⅞	1⅞	Root Petroleum Co.	336,045	$1	25c	2-1-37	.25	13¾	2	19¼	4½
4	2⅛	No sales	..	..	..	Ryan Consolidated	296,931	N.P.	....	.....	....	6½	2¼	4¾	1⅞
5⅜	3⅜	No sales	..	..	..	Southern Pipe Line	100.000	$10	15cSA	3-1-38	.45	7¼	3⅞	7⅞	3¼
39	28¾	200	34¼	32½	34¼	South Penn Oil	1,000,000	$25	50cQ†	3-31-38	3.65	56	35	44	32½
22¼	19	No sales	..	..	..	Southwest Penna. Pipe Lines	35.000	$50	50cQ	4-1-38	2.00	42	20	60	44
18	15	400	16½	16½	16½	Standard Oil of Kentucky	2,604,790	$10	25c	6-15-38	1.50	21⅛	14¾	23⅜	17⅛
7½	6⅛	100	6¼	6¼	6¼	Standard Oil of Nebraska	166.403	$25	25c	3-29-37	.25	13¾	8	14⅝	11
22	16¼	300	18⅛	18	18	Standard Oil of Ohio	753,740	$25	25c	6-15-38	1.50	45	16	40	21¾
3¼	2⅛	2,300	2½	2¼	2⅜	Sunray Oil	1.910.119	$1	10c	12-24-37	.25	4⅞	2	5	2⅝
4⅜	3½	900	4¼	4	4¼	Texon Oil & Land	336,028	$2	15cQ	6-30-38	.45	7⅝	2	9¾	5⅜
7⅝	4⅝	1,500	4¾	4⅜	4¾	Transwestern Oil Co.	750,000	$10	..	....	....	13⅞	4⅝	..	..
5¼	2¾	5,700	3½	3⅛	3⅜	United Gas Corp.	7,818,959	$1	....	.....	....	13⅜	3	10¾	4

†Includes extras. ‡Payable in Canadian funds. §Of which $1 was in preferred stock.

PERSONAL

EDMOND C. BREENE, Oil City, Pa., producer and a director of the Pennzoil Company, has completed an inspection tour of the Mid-Continent properties of the Winona Oil Company of which he is president.

DAVID S. KILGOUR, assistant manager of California Oil and Gas Association, has been elected president of the Petroleum Accountants Society of Los Angeles, succeeding R. L. MINKLER of General Petroleum Corporation, who has been president for the past year. At the annual meeting W. B. THOMSON of Kettleman North Dome Association, IRVING J. HANCOCK of Union Oil Company, and J. S. WATSON of Shell Oil Company were elected directors; L. A. WILLIFORD of Macmillan Petroleum Corporation and W. R. RUSSELL of Seaboard Oil Corporation also were reelected.

WESLEY CUNNINGHAM, comptroller and a member of the board of directors of General Petroleum Corporation, has recently completed 20 years of uninterrupted service with the company.

AKURA OGURA and SENSUKI MORIYA, mechanical engineer and chemical engineer, respectively of Ogura Oil Company, with offices in Tokyo, are spending a week in California inspecting West Coast refining methods before leaving for Japan on June 18.

P. J. REILLY, JR., vice president of Globe Oil & Gas Corporation, returned to New York last week after making a business trip to the Birk City district, Henderson County, Kentucky. While in Kentucky Mr. Reilly acquired several tracts which will be developed.

DAVID WHITAKER, independent oil operator of Houston, Tex., and his family have gone to Canada for a summer vacation trip.

L. A. NORDAN, well known among independent oil operators in the Southwest, will open an office in the Milam Building in San Antonio, Tex.

W. M. McGREGOR, president of the First National Bank of Wichita Falls, Tex., has been selected chairman of the petroleum committee of the Texas Bankers Association.

O. E. McCLATCHEY, purchasing agent for the Barnsdall Oil Corporation; H. M. COSGROVE, and W. L. JAMES, purchasing agent for the Stanolind companies, returned to Tulsa this week after spending several days in St. Louis, Mo., at the National Association of Purchasing Agents convention. Mr. McClatchey was reelected chairman of the Oil Country Buyers Group, Mr. Cosgrove was reelected chairman of the editors group and Mr. James was one of the principal speakers.

F. W. ABRAMS, president of the Standard Oil Company of New Jersey, is in Baton Rouge, La., this week.

GORDON HEID, assistant district geologist for Shell Petroleum Corporation, Midland, addressed the West Texas Geological Society last week on "Dutch East Indies."

H. W. CHAMBERS, manager of the finance division of Standard Oil Company (New Jersey) marine department, has retired. He joined the Standard organization at the time it absorbed Pan American Petroleum & Transport Company, with which he served several years.

HERBERT H. LEHMAN, governor of New York, was named as an owner of property under litigation in the new Coalinga pool which was recently discovered by Petroleum Securities Corporation in western Fresno County, California.

I. J. SHIELDS, manager of the Duluth, Minn., division of Standard Oil Company of Indiana, will retire on company annuity July 1 after 32 years of service. J. W. HONOMICHL, manager of the former Sioux City, Iowa, division, will be transferred to succeed him.

DONALD RICHBERG, Washington, D. C., attorney and one time head of the N.R.A., has been retained as counsel for Huasteca Petroleum Company, the Mexican affiliate of Standard Oil Company (New Jersey), for negotiations in the Mexican oil dispute.

J. S. HELM, manager of the asphalt division of Standard Oil Company (New Jersey) and president of Asphalt Institute, sailed last week with T. H. MacDONALD, chief of the U. S. Bureau of Public Roads, to attend the eighth International Road Congress at The Hague.

Do You Remember?

From The Oil and Gas Journal Files

25 YEARS AGO

The Somerset pool in Texas, 18 miles southwest of San Antonio, is opened on the farm of C. Kurz. The discovery well shot a stream of oil 140 feet high.

Edgar W. Coleman, 73, Pennsylvania oil producer and father of Howard Coleman, later with Sun Oil Company, dies in Buffalo, N. Y.

Frank P. Peterson of the Western Riverside Oil Company was thrown from his buggy and painfully injured when his team ran away while going from the company's plant at Glen Pool to Kiefer, Okla.

20 YEARS AGO

A rosewood-colored dye is being extracted from shale oil in a Wyoming refinery and sold commercially.

Col. Edward H. Wilson, 79, dies in Taft, Calif., and George W. Akin dies on his California ranch. Both were oil pioneers, dating from 1865 in Pennsylvania. They had operated in many fields.

Lee C. Moore, steel derrick manufacturer, changes his residence from Pittsburgh, Pa., to Tulsa.

Art L. Walker is appointed a member of the Oklahoma Corporation Commission by Governor Williams. He succeeds Jack Love, deceased.

Hundreds of iron workers engaged in tank construction in Kansas and Oklahoma went on strike June 1.

10 YEARS AGO

Frank H. Taylor, 75, pioneer oil scout in Pennsylvania, later editor of the Oil City Derrick, and then statistician for the Union Oil Company of Delaware, dies in Vineland, N. J.

The National Transit Company has reversed the stream in its pipe lines and is shipping Texas oil from Marcus Hook to a Franklin, Pa., refinery and oil from the Bradford field south to Oil City refineries.

Samuel Brambley, 85, who started in the oil business near Oil City, Pa., in 1864, dies in Brea, Calif., where he had been a producer for over 25 years.

MICHAEL J. LEAHY, industrial chemist and metallurgist, has opened a laboratory in Fort Worth, Tex., and will do petroleum consulting and research work.

M. J. RATHBONE, president of the Standard Oil Company of Louisiana, returned to Baton Rouge last week following a visit to Atlantic City and New York.

A. J. BRODERICK, member of the independent firm of Broderick & Calvert, Fort Worth, Tex., is on a two weeks' trip to New York City and other eastern points.

REX YOUNG, formerly general refinery superintendent of Bell Oil & Gas Company, has resigned to become manager of Bryson Pipe Line & Refining Company, Bryson, Tex.

E. ANGOT, of Paris, France, manager of Compagnie des Produits Chimiques et Raffineries de Berre, spent last week in New York after a trip through Texas and the Mid-Continent. He was reported in this country arranging for crude oil supplies.

J. F. HOSTERMAN and LARRY MEISTER, who have been handling work of the geological and land departments in Amerada Petroleum Corporation's Fort Worth office, are being transferred to the Tulsa offices of that company to complete the centralization of those departments in the latter city.

ROBERT S. LYTLE, general field manager of Petroleum Securities Corporation, recently journeyed to Coalinga, Calif., to direct the coring of oil sand in the discovery well of the new Coalinga pool. The sand was described by J. R. PEMBERTON, oil umpire of California, as "richest I have seen in the state."

PARAGRAPHS

H. D. EASTON, JR., of Shreveport, attended commencement this week at the University of Oklahoma, Norman, where he received his professional degree of petroleum engineer. He was accompanied by MRS. EASTON.

LESLIE E. BROOKS, publicity director for the International Petroleum Exposition, and MISS DOROTHY JAYNE WHITEHEAD, both of Tulsa, were married in that city on June 4. Mrs. Brooks is a daughter of MR. and MRS. W. S. WHITEHEAD.

R. C. MITCHELL, research engineer for the Kansas Board of Health for the past three years, has submitted his resignation to be effective July 1. Mr. Mitchell was connected with WAITE PHILLIPS in oil production work in Kansas after graduating from the University of Kansas in 1925. Following this and until 1934 he was with the Standard Oil Company of New Jersey assigned to special engineering and geological work in the Dutch East Indies.

PAUL H. HARWOOD, assistant general manager of Standard Oil Company (New Jersey) marine dedepartment, has retired.

WALTER HAUN, of the Lion Oil Refining Company, has been named chairman of the committee which will prepare the Arkansas exhibit for the New York World's Fair.

RICHARD BOGGS, formerly superintendent of the southern division of Richfield Oil Corporation of California, has been promoted to the position of general field superintendent of all California operations, and will make his headquarters at the Richfield Building in Los Angeles. Mr. Boggs' former position has been filled by STENDER SWEENEY, who was formerly superintendent of the Ventura division for Richfield.

R. D. REED, chief geologist for the Texas Company in California, led a discussion on geologic problems of the Salinas Valley at the annual meeting of the Pacific Coast section of the Society of Economic Paleontologists and Mineralogists, which was held at Paso Robles, Calif., on June 3 and 4.

J. H. McMASTERS, geologist for Honolulu Oil Company at Taft, Calif., has just returned from a tour of his company's producing properties in West Texas and New Mexico. He was accompanied by OZ CUNNINGHAM, purchasing agent for the same company; ELMO ADAMS, chief geologist from the company's San Francisco headquarters, and ROBERT ROGERS, chief petroleum engineer. Traveling in a private plane, the group made the tour during their return from the Tulsa exposition.

HENRY H. COLER, formerly oil and gas supervisor for the State of Mississippi, has resigned to accept a position with the Southern Natural Gas Company. He is succeeded by H. M. MORSE.

R. K. DeFORD, geologist for Argo Oil Corporation, Midland, Tex., has been appointed chairman of the technical program committee for the mid-year A.A.P.G. meeting to be held in El Paso, Tex., this fall.

W. E. DUNLAP, consulting geologist and petroleum engineer, has been appointed to represent interests of Pacific Dock & Terminal Company in the Wilmington field of California. A 108-acre tract owned by this concern is being developed by Richfield Oil Corporation.

J. J. McPOLAN, superintendent of the North Texas district, Wichita Falls, for Magnolia Pipe Line Company, has been promoted to superintendent of their central division. C. E. STILL, former district foreman at Shreveport and Rodessa has been promoted to the North Texas district to succeed him.

W. H. McFADDEN, former chairman of the board of Southland Royalty Company, was elected president at the stockholders' annual meeting recently. He is succeeded by F. L. AURIN. Other officers elected were S. A. DELLAPLAIN, vice president and general manager; RALPH H. CUMMINGS, vice president; TESS LINDSAY, vice president; H. E. OAKES, secretary and general counsel; F. A. KNAPP, treasurer. Formal announcement was made that the company's headquarters, formerly in Ponca City, Okla., will be in Fort Worth, Tex. The company recently opened an office in Wichita, Kans., with Mr. Dellaplain in charge.

Promotion for McLaren

Just 14 years from the time L. G. McLaren started to work for the Shell Oil Company as a service station employe he was general sales manager. And now he has been made vice president in charge of marketing. For 10 years or so after leaving school young McLaren had worked at various jobs, none of which seemed to get him going right. When his name was added to the Shell payroll in Seattle, Wash., he wasn't sure he had found himself either. But he had a knack of making folks who stopped at the filling station feel like coming back. He hadn't been filling tanks, wiping windshields and waving a cheery "Come again" very long before he was made a salesman. The same qualities that had made his former service station a pleasant place to go enabled him to build up profitable accounts. He was definitely on his way, and promotions came along with regularity. They made him a local manager, then district manager, and eventually division manager in cities of the Northwest and the Hawaiian Islands. From this last-named post, with his headquarters in Seattle, Mr. McLaren was transferred to San Francisco as general sales manager in 1935.

L. G. McLAREN

In his new office of vice president in charge of marketing, Mr. McLaren will direct Shell's sales, storage, and distribution operations in the West, British Columbia, and the Hawaiian Islands. He and Mrs. McLaren, with their three sons, reside in San Mateo, Calif.

R. CHENEY HART, independent oil man of London, England, is visiting his branch office in Fort Worth, Tex.

RICHARD B. KAHLE, president of the Eastern States Petroleum Company, New York, is recuperating from an operation for appendicitis.

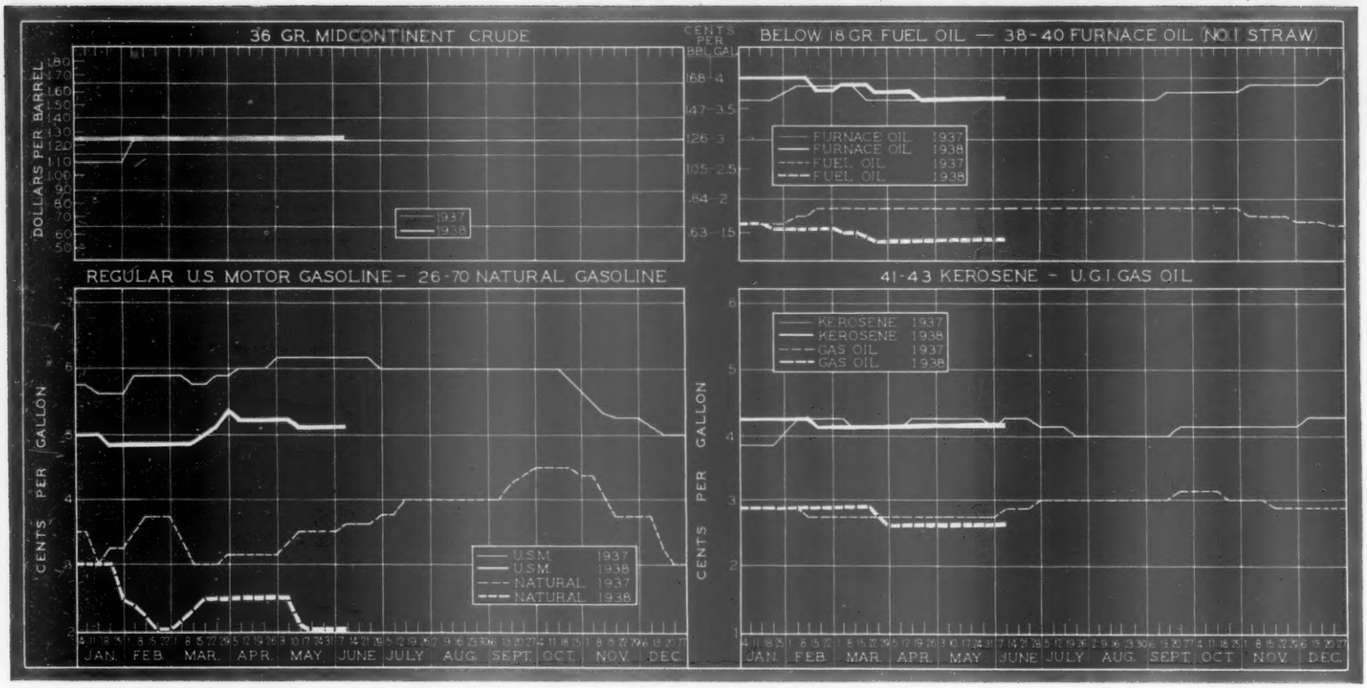
STANLEY COHAGEN, vice president of Argo Oil Company, has left his Fort Worth home for a six weeks' vacation and cruise to Honolulu and the Hawaiian Islands.

DR. DONALD C. BARTON, president, American Association of Petroleum Geologists, Houston, Tex., was a visitor at association headquarters in Tulsa last week.

W. M. OSBORN, formerly geologist with Shell Petroleum Company in the West Texas district for the last five years, has resigned to engage in private consulting work, with office at Midland, Tex.

M. G. CHENEY, of Coleman, Tex., well known geologist in the West Central Texas area, has been elected president of the newly formed Maxwell Drilling Company of Coleman. W. E. STEPP, with the Anzac Oil Corporation of that city, is identified with the new concern.

TODDIE LEE WYNNE, of American Liberty Oil Company, Dallas, Tex., has been elected president of the American Liberty Pipe Line Company, succeeding the late Dudley S. Golding. CLINT W. MURCHISON was reelected vice president, and D. R. ZACHRY promoted from secretary to treasurer of the company, and will continue in active charge of the pipe line company's operations. V. H. MAXWELL was elected to the position of secretary, and given a membership on the board of directors.



Representative Mid-Continent Quotations on Crude Oil and Refined Products, Basis Oklahoma (Group 3)

Gasoline Demand Livelier in Group 3 Market as Prices Move Upward

By D. H. STORMONT

The Group 3 gasoline market was in a much brighter mood this week as continued good contract movement accompanied by increased spot market buying resulted in refiners moving their price quotations up a notch. Although the advance made but a small dent in the differential between this and last year's prices, refiners were greatly cheered by the higher postings and many felt that the near future would see a continuance of the upward trend. Especially so if crude production is continued on its present curtailed basis and refinery runs are held low enough to allow motor fuel inventories to melt faster than seasonally.

Jobber Demand Heavier

Several refinery sales managers reported that the customary Monday morning lull was absent this week. Instead of devoting the morning to handling of correspondence and routine matters the time was spent in searching for gasoline supplies to meet a quickened jobber buying. Since the market had been largely a buyer's market during the past few months, some jobbers were none too prompt in filling depleted stocks or in buying for summer consumption. The stronger market, however, brought many of these into the open. Refiners who have adopted the policy of cutting down their crude runs to stills and were supplying part of their demand with supplies secured on the open market were also having difficulty in filling their contracts.

"Every car of gasoline that we can ship from our own plant is booked well into June," said one refiner. "Until recently we always knew where we could pick up as many cars as we might need. But things have changed. One plant usually looking for outlets is sold up for 10 days ahead."

Third-grade gasoline was reported in an especially strong position with supplies somewhat scarce. Much of its strength was said to be due to heavy buying for rural trade. Many farmers are now using low-octane gasoline instead of kerosene or tractor fuels so that third-grade is finding a wider market. Harvesting has already begun in the lower portions of the grain belt and with a record winter and spring wheat crop forecast, third-grade gasoline should continue in excellent demand throughout the harvesting season. June corn planting in the northern states is also requiring additional volumes of low-octane material.

In general conditions in the Group 3 area are much brighter than several weeks ago. Total gasoline stocks in the Oklahoma-Kansas-Missouri area are about 13 per cent lower than those of a year ago and weekly A.P.I. reports show them to be continually becoming smaller. Early estimates of June refinery runs in the Mid-Continent indicate that they will vary but little from May schedules so that inventories in the area will probably continue to decline. The shutting down of four additional refineries within the past two weeks will serve to remove some 7,000 bbls. of gasoline daily from the market during June.

Naturals in Fair Demand

Natural gasoline showed little change, remaining in fair demand. Jobbers in the northern states are said to be having difficulty in securing supplies of naphtha to blend with natural to produce a finished motor fuel. As a result the natural gasoline ordinarily consumed in this market has fallen off. Increased consumption of motor fuel, however, is helping to keep stocks from becoming too large.

Kerosene was reported in fair movement and tractor fuels were moving briskly. These products, like third-grade gasoline, were feeling the effects of a bumper harvest and a continued brisk demand seemed assured. Gas oil was reported in slightly better position with movement fair. Furnace distillates seemed to be showing as strong a tone as last week with inquiries appearing in increasing number. Lubricants and heavy fuels were dull.

Refined Oil Market Barometer

Definite improvement was noted in the gasoline market as prices of most grades moved fractionally upward and were strong at their new positions. Continued reductions in crude and gasoline stocks and increasingly heavy consumption as the vacation season begins are serving to encourage refiners to hold for higher prices. Heating oils steady with inquiries for fall supplies increasing.

MID-CONTINENT. Gasoline strong, prices up. Tractor fuels active. Heavy fuels dull.

EAST COAST. Gasoline improved, consumption rising. Fuel oils weak.

GULF COAST. Gasoline stronger. Fuels unchanged with market inactive.

CALIFORNIA. Market quiet and unchanged. Heavy oils slow.

PENNSYLVANIA. Gasoline steadier. Bright stocks and neutrals weak.

CHICAGO. Motor fuels active, prices up. Tractor fuels active. Heavy fuels dull.

Gasoline Is Hitting Its Summer Stride in East Coast Market

By H. STANLEY NORMAN

NEW YORK, June 7.—Favored by another week of excellent motoring weather, gasoline moving in the eastern marketing territory is rapidly approaching midsummer proportions. Reports from many parts of the country indicate the triple Memorial holiday week-end set an all-time record for motor fuel demand. Storage facilities of terminals and retail outlets were taxed. Stock replacement orders during the early part of last week were in proportion to the brisk retail demand over the week-end.

Practically all weak spots in the gasoline market, excepting the northern New Jersey retail field, have disappeared during the past two weeks. There has been no change in the basic tankcar and tank-wagon rates of moment in this area so far, but tone of the market is definitely improved and observers feel it is in position to move ahead.

Improvement in the gasoline market is exerting a counter-current influence on the fuel oil structure. There have been no important breaks in light fuel oils since Standard Oil Co. (N. J.) reduced tankcar prices recently along most of the northeastern seaboard by a quarter-cent to a half-cent a gallon. Tank-wagon kerosene prices were dropped a half-cent in North Carolina and South Carolina at the end of May, along with similar reductions in the tankcar quotations on light fuel oils in other sections of the Standard of New Jersey marketing territory.

The demand for fuel oil has declined steadily, but some observers feel it has about touched bottom. There is some indication that refiners are slightly more optimistic though stocks continue their upward trend. Improved conditions in the motor fuel market on the Gulf Coast have raised the spirits of refiners and dealers in this area. Refiners expect fuel oil conditions to remain practically unchanged until the fall and winter demand sets in. Gulf Coast refiners are reported asking a minimum of 3½ cents a gallon for No. 2 fuel oil, a quarter-cent more than was dangled before the trade during May. Some are quoting higher prices, but the market is disappointing at best. Practically the only movement currently reported is to isolated terminals which can be served by water only during the summer months. Some jobbers in position to hold fuel oil over a period of three or four months are also taking advantage of the current quotations, realizing that the market will bulge in the fall.

Industrial fuel oil remains weak, and reports are current that the price of $1.05 a barrel for Bunker C fuel oil in northern Atlantic waters is being shaded by some suppliers. The price of 70 cents a barrel on the Gulf Coast, coupled with low tanker rates prevailing, presents a combination of factors conducive to price-shading at north Atlantic terminals. So far there has been no break in the New York harbor market, but concessions have been more numerous further south on the coast.

The shore plant quotations for No. 6 industrial fuel oil are becoming more difficult to maintain, and at some points reductions have been posted. The heavy industrial grade is available in New York at 2¾ cents, although observers report the quantity obtainable at this price is limited and than 3 cents a gallon is more nearly representative of the true market.

Bright stocks and neutral oils in the western Pennsylvania refining district dipped again last week. The cuts ranged from a cent to a cent and a half on practically all grades. Viscous neutrals are offered at 13 cents for 25 pourpoint grade to 16 cents for the zero quality, and the price range for neutrals of 150 viscosity is from 11½ to 14½ cents. Bright stocks were lowered in the same proportions. The open tankcar quotations are drawing nearer the inter-refinery prices and may have a stimulating effect on shipping instructions, although movement was reported light last week. Several plant operators plan to curtail their schedules in June in line with efforts to bring production nearer demand.

Gasoline business in western Pennsylvania is well maintained. Considerable material is moving to refineries for reforming since most of the demand at attractive prices is for higher-octane motor fuel.

Coastwise movement from the Gulf consists mostly of high-octane gasoline. Motor fuel of 65-octane rating is available in tankcars in New York for 6½ cents and deliveries by barges can be obtained for 6¼ to 6⅜ cents a gallon. The disturbed retail spots in New York are practically eliminated and conditions were reported considerably improved in northern New Jersey although cut-price signs are still plentiful.

There has been only a limited amount of open spot-market export business on the Gulf Coast during the past two weeks. The increased rate of crude, gasoline, and fuel oil shipments abroad continued through May, but most of the business was against previously placed contracts. Gulf Coast refiners have declined to drop their quotations to the levels representing buyers' opinions. Several refiners have declined to quote on inquiries reaching the market, preferring to await firm offers more nearly in line with their ideas on prices. Rumanian refiners were reported about sold up for the current season, although that country probably will be a more important factor in European markets in the near future, since the government has modified some of its exchange restrictions. Since Rumania figured so prominently in European purchases in April and May, prices at Constanza have stiffened and are now approximately parallel with those prevailing at Gulf Coast ports.

Heavy fuel oil continues to move from Gulf Coast ports to the South American trade, apparently replacing to a limited extent the material formerly loaded at Mexican ports. The demand from domestic industrial consumers re-

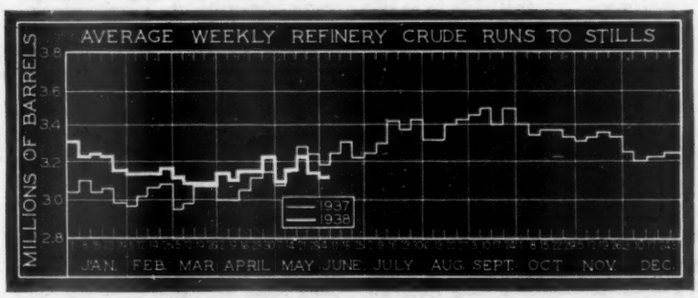
(Continued on Page 104)

A. P. I. Weekly Refinery Statistics

Week Ending June 4, 1938

	Capacity reporting (per cent)	Daily crude runs (bbls.)	Total gasoline stocks	Gas oil and fuel oil stocks
East Coast	100.0	519,000	23,485,000	11,233,000
Appalachian	88.4	89,000	3,362,000	1,378,000
Indiana, Illinois, and Kentucky	92.4	384,000	14,096,000	8,249,000
Oklahoma, Kansas, and Missouri	84.7	282,000	7,755,000	4,042,000
Inland Texas	56.6	125,000	2,556,000	1,662,000
Texas Gulf	95.7	764,000	11,841,000	10,229,000
Louisiana Gulf	96.6	131,000	2,706,000	3,407,000
North Louisiana and Arkansas	63.7	37,000	490,000	784,000
Rocky Mountains	69.7	44,000	2,199,000	867,000
California	90.9	459,000	14,657,000	90,041,000
Total reported	89.0	2,834,000	83,147,000	131,892,000
Estimated unreported	.....	271,000	4,620,000	2,740,000
*Estimated total	.....	3,105,000	87,767,000	134,632,000
*Estimated total, previous week	.....	3,150,000	87,964,000	134,315,000
*June 5, 1937	.....	3,195,000	77,494,000	97,402,000

*Bureau of Mines, currently estimated.



Stocks of Crude Oil in the United States

(BUREAU OF MINES ESTIMATES)

Week ending May 21, 1938	302,597,000 barrels
Week ending May 14, 1938	304,198,000 barrels
Week ending May 22, 1937	307,033,000 barrels

Retail Oil Markets

Tank-wagon and filling station prices on gasoline and kerosene furnished by the larger marketing firms

Prices as of June 7, 1938

Taxes

The gasoline quotations given in the following tables include the 1-cent federal tax, as well as state, county and city taxes. The gasoline is the regular or standard grade. In most areas a third grade and a premium grade are also available.

Standard Oil Co. (Indiana)

	Gasoline			Kero.
	Tank wag.	Dlr.	Inc. tax	tank-wag.
Chicago, Ill.	15.6	13.6	4.0	10.5
Decatur	15.6	14.1	4.0	10.5
Joliet	15.6	14.1	4.0	10.5
Peoria	15.6	14.1	4.0	10.5
Quincy	15.4	13.9	4.0	10.3
Davenport, Ia.	15.6	14.1	4.0	‡10.5
Des Moines	15.4	13.9	4.0	‡8.3
Mason City	15.8	14.3	4.0	‡10.7
Sioux City	15.6	14.1	4.0	‡10.5
Duluth, Minn.	17.4	15.9	5.0	11.3
Mankato	17.0	15.5	5.0	10.9
Minneapolis	17.0	15.5	5.0	10.9
LaCrosse, Wis.	17.0	15.5	5.0	10.9
Green Bay	17.4	15.9	5.0	10.3
Milwaukee	16.8	15.3	5.0	10.7
Detroit, Mich.	15.3	13.8	4.0	9.0
Grand Rapids	14.8	13.8	4.0	9.7
Saginaw	16.3	14.8	4.0	9.3
Evansville, Ind.	17.1	15.6	5.0	†11.0
Indianapolis	17.3	15.8	5.0	†11.2
South Bend	17.6	16.1	5.0	†9.4
Fargo, N. Dak.	17.2	15.7	4.0	12.1
Minot	18.5	17.0	4.0	13.4
Huron, S. Dak.	17.5	16.0	5.0	11.4
Kans. City, Mo.*	14.9	13.4	4.0	9.8
St. Louis*	15.2	13.7	4.0	8.0
St. Joseph*	14.9	13.4	4.0	9.8
Wichita Kans.	14.4	11.6	4.0	8.3

*State tax 2 cents, 1-cent city tax and 1-cent federal tax. †Does not include 4-cent state tax. ‡Does not include 3-cent state tax.

Exclusive of state general sales taxes.

Discounts to commercial consumers: On purchases per month off tank-wagon prices: 1,000 gallons or more, 1.5 cents off; minimum delivery 25 gallons.

Stanolex Fuel Oil in Chicago

Effective Dec. 7, 1936, f.o.b. Chicago tank-wagon prices: Range oil, 1-99 gallons, 8.8 cents; 100-149 gallons, 7.8 cents; 150 gallons and over, 7.3 cents. Stanolex No. 1, 1-99 gallons, 8.8 cents; 100-149 gallons, 7.8 cents; 150 gallons and over, 7 cents. Stanolex furnace oil, 1-149 gallons, 7.8 cents; 150 gallons and over 7 cents; Stanolex A, 1-399 gallons, 5.75 cents; 400 gallons and over, 4.75 cents. Stanolex B, 1-799 gallons, 5.75 cents; 800 gallons and over, 4.75 cents.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline			Kero.
	Tank-wag. dlr.	Tank-car con'r.	Inc. tax	tank-wag
Atl'tic. City, N. J.	12.75	11.25	4.0	8.0
Newark	12.75	11.25	4.0	8.0
Annapolis, Md.	14.85	13.35	5.0	9.5
Baltimore	14.25	12.75	5.0	9.0
Cumberland	16.65	14.15	5.0	10.6
Wash'g'n, D. C.	12.5	11.0	3.0	9.5
Danville, Va.	16.95	14.45	6.0	12.9
Norfolk	15.75	13.25	6.0	11.5
Petersburg	16.05	13.55	6.0	11.7
Richmond	16.05	13.55	6.0	11.7
Roanoke	17.25	14.75	6.0	12.9
Charles'n, W. V.	17.05	14.55	6.0	12.6
Parkersburg	15.35	13.85	6.0	11.2
Wheeling	16.25	14.85	6.0	12.2
Charlotte, N. C.	18.65	16.15	7.0	12.1
Hickory	19.15	16.65	7.0	12.5
Mt. Airy	18.95	16.45	7.0	12.3
Raleigh	18.25	15.75	7.0	11.6
Salisbury	18.75	16.25	7.0	12.2
Charleston, S. C.	17.25	14.75	7.0	10.6
Columbia	18.25	15.75	7.0	11.6
Spartanburg	18.95	16.45	7.0	12.4

Price basis to commercial consumers, effective March 8, 1937, in Maryland, District of Columbia, and in Arlington and Fairfax counties in Virginia; and March 12 in New Jersey: To contract accounts purchasing at least one full compartment at time by hose connection, on yearly purchases: From 2,500 to 100,000 gallons, consumer tank-wagon price at time and place of delivery; 100,000 gallons per year, consumer tankcar price plus .5 cent per gallon. Consumer tank-wagon price generally will be equivalent to dealer tank-wagon price less .5 cent per gallon.

Effective May 15, 1937, in North and South Carolina, West Virginia and Virginia (except Arlington and Fairfax counties): Commercial consumers taking deliveries of 50 gallons (W. Va., 100 gallons) or more at one time will be billed at posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gallons (W. Va., 100 gallons) will be billed at 4 cents per gallon over posted consumer tank-wagon price. Generally the posted consumer tank-wagon price will be the equivalent to the dealer price less .5 cent per gallon.

Discount for kerosene, 1 cent off tank-wagon price for 25 gallons or more under contract (contract not necessary in Baltimore) except no discount in New Jersey.

Southern District

STANDARD OIL CO. OF KENTUCKY

	Gasoline			Kero.
	Tank-wag.	Net dlr.	Inc. tax	tank wag
Atlanta, Ga.	20.0	17.0	7.0	*12.0
Augusta	21.0	18.0	7.0	*14.0
Macon	21.0	18.0	7.0	*14.0
Savannah	19.5	16.5	7.0	*12.0
Birm'ham, Ala.	21.0	18.0	8.0	12.0
Mobile	21.0	18.0	9.0	11.0
Montgomery	21.0	19.0	9.0	13.0
Jackson, Miss.	19.5	16.5	7.0	*12.5
Vicksburg	19.5	16.5	7.0	*12.5
Jacks'ville, Fa.	22.5	17.5	8.0	11.0
Miami	20.5	17.5	8.0	11.0
Pensacola	22.0	19.0	9.0	12.0
Tampa	19.5	16.5	8.0	10.5
Lexington, Ky.	19.0	16.0	6.0	11.0
Covington	18.5	15.5	6.0	11.0
Louisville	19.0	16.0	6.0	10.5
Paducah	19.0	16.0	6.0	10.0

Price basis to tank-wagon consumers: Effective January 4, 1937, 3 cents per gallon below tank-wagon price. Kerosene prices in all states subject to 2 cents discount except in Kentucky where prices are net.

*Includes 1-cent state tax.

Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax; and 1 cent per gallon on kerosene. Mobile, Ala., has a city gasoline tax of 2 cents per gallon; Birmingham, Ala., has a city gasoline tax of 1 cent per gallon; Pensacola has a city gasoline tax of 1 cent.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline		Kero.
	Dealer	Inc. tax	tank wag
Denver, Colo.	14.0	5.0	11.5
Grand Junction	19.0	5.0	15.0
Pueblo	16.5	5.0	10.5
Casper, Wyo.	17.0	5.0	11.5
Cheyenne	13.0	5.0	13.0
Butte, Mont.	19.5	6.0	15.5
Billings	19.5	6.0	13.0
Helena	19.5	6.0	15.5
Great Falls	19.5	6.0	15.5
Salt Lake City, Utah	18.0	5.0	16.0
Twin Falls, Ida.	21.0	6.0	18.0
Boise	21.5	6.0	18.0
Albuquerque, N. M.	17.5	*6.5	12.0

*Includes city tax of one-half cent.

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline			
	Tank-wag. con'r.	Dlvided dlr.	Inc. tax	Kero. tank-wag.
Ohio points	16.5	15.5	5.0	*13.0

*Includes state tax of 1 cent.

New York and New England

SOCONY-VACUUM OIL CO., INC.

	Gasoline			Kero.
	Tank-wag.	Tank-car	Inc. tax	tank wag.
Albany, N. Y.	14.5	12.5	5.0	9.0
*Met. N. Y.:				
M'htt'n, Br'nx	14.0	12.5	5.0	8.75
Staten Island	14.0	12.5	5.0	8.75
Q'ns & Bk'yn.	14.0	12.5	5.0	8.75
Buffalo	14.0	13.0	5.0	7.5
Rochester	15.0	13.2	5.0	8.5
Syracuse	14.5	13.1	5.0	9.0
Boston, Mass.	13.5	11.75	4.0	8.5
Portland, Me.	15.0	13.0	5.0	8.75
Manch'ter, N.H.	15.5		5.0	9.0
Burlington, Vt.	15.4	13.4	5.0	9.5

*Does not include 2 per cent city sales tax which is calculated on basis of net retail price exclusive of state and federal taxes. Metropolitan New York prices are undivided dealer prices; others are split dealer.

Price basis to undivided dealer: Posted dealer tank-wagon price less .5 cent. Price basis to commercial consumer: Effective Nov. 15, 1936, monthly purchases of 25,000 gallons and over, consumer tankcar prices at delivery point plus .5 cent per gallon; monthly purchases of 5,000 to 25,000 gallons, undivided dealer price at delivery point; monthly purchases under 5,000 gallons, pay divided dealer tank-wagon prices at delivery point.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

	Gasoline			Kero.
	Tank-wag.	Serv. sta.	Inc. tax	tank wag.
San Francisco	17.5	18.5	4.0	11.5
Los Angeles	17.0	18.0	4.0	10.0
Fresno, Calif.	18.5	19.5	4.0	12.5
Phoenix, Ariz.	21.5	22.5	6.0	*17.5
Reno, Nav.	20.5	21.5	5.0	13.5
Portland, Ore.	20.0	21.0	6.0	13.5
Seattle, Wash.	20.0	21.0	6.0	13.5
Spokane	23.0	24.0	6.0	16.5
Tacoma	20.0	21.0	6.0	13.5

*Includes 5-cent state tax.

Discounts to dealers: On gasoline, off tank-wagon price, to 100 per cent dealers, 3 cents; to split dealers, 2 cents. To commercial consumers: on tank-wagon price: on single deliveries of 40 gallons and over, advance quantity discount extended at time of delivery, 3 cents. Service station schedule applies on single deliveries less than 40 gallons. On kerosene in tankcar, transport truck and trailer delivery, 3 cents off tank-wagon price; plant deliveries to jobbers, 2.5 cents below tank-wagon.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline			Kero.
	Tank wag.	Dlr.	Inc. tax	tank-wag.
Omaha	18.0	16.5	6.0	10.8
McCook	17.5	15.0	6.0	9.5
Norfolk	18.4	16.9	6.0	10.3
North Platte	18.8	16.9	6.0	11.0
Scotts Bluff	19.5	16.5	6.0	12.3

Discounts to commercial consumers for tank-wagon deliveries covered only by standard commercial consumers contract, effective Jan. 1, 1935.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline			Kero.
	Tank-wag. dlr.	Tank-car con'r.	Inc. tax	tank-wag.
N. Orleans, La.	19.0	16.5	*10.0	†12.0
Baton Rouge	17.0	14.5	8.0	12.0
Alexandria	17.5	15.0	8.0	10.5
Lafayette	18.0	15.5	8.0	12.5
Lake Charles	18.0	15.5	8.0	12.5
Shreveport	16.5	14.0	8.0	9.5
Kn'xv'lle, Tenn.	20.0	17.5	8.0	14.0
Memphis	18.0	15.5	8.0	12.0
Chattanooga	19.5	17.0	8.0	13.5
Nashville	19.0	16.5	8.0	10.5
Bristol	19.0	17.75	8.0	14.5

*Includes 2-cent parish tax. †Includes 1-cent parish tax and 1-cent state tax.

Price basis to commercial consumers: Effective May 15, 1937, deliveries of 50 gallons or more in one delivery takes posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gallons at one time pay posted consumer tank-wagon price plus 4 cents per gallon. Generally, the posted consumer tank-wagon price will be equivalent to the dealer price less .5 cent per gallon.

Louisiana kerosene prices include 1-cent state tax.

Pennsylvania, Delaware and Part of New England

ATLANTIC REFINING CO.

	Gasoline			Kero.
	Tank-wag. dlr.	Tank-car con'r.	Inc. tax	tank-wag.
Philadelphia, Pa.	13.75	12.25	5.0	10.0
Pittsburgh	15.0	13.0	5.0	10.5
Allentown	14.25	12.75	5.0	10.5
Erie	14.5	13.0	5.0	10.0
Scranton	14.5	13.0	5.0	10.5
Altoona	15.0	13.0	5.0	10.5
Dover, Del.	13.5	....	5.0	10.5
Wilmington	13.5	....	5.0	10.5
Springf'd, Mass.	13.5	....	4.0	8.0
Worcester	14.0	....	4.0	8.5
Hartford, Conn.	13.6	....	4.0	7.5
New Haven	13.5	....	4.0	8.0
Providence, R. I.	13.0	....	4.0	8.0

Price basis to undivided dealers, dealer tank-wagon price less .5 cent per gallon. Price basis to commercial consumers in Pennsylvania and Delaware effective March 11, 1937: Consumers under contract using 100,000 gallons or more per year full compartment hose deliveries, tankcar plus .5 cent. Consumers under contract using less than 100,000 gallons per year compartment hose deliveries, undivided dealer price. Consumers under contract less than full compartment delivery, consumers not under contract, less than full compartment delivery, and consumers not under contract full compartment delivery, divided dealer price. Less than 25 gallons, tank-wagon delivery, 4 cents per gallon above undivided dealer price.

Oklahoma and Arkansas

CONTINENTAL OIL CO.

	Gasoline		Kero.
	Dealer	Inc. tax	tank-wag.
Muskogee, Okla.	14.5	5.0	7.0
Oklahoma City	13.5	5.0	8.0
Tulsa	14.0	5.0	6.0
Ft. Smith, Ark.	14.25	5.0	7.5
Little Rock	16.75	7.5	8.0
Texarkana	14.0	5.0	8.5

Texas

	Gasoline			Kero.
	Tank-wag.	Serv. sta.	Inc. tax	tank-wag.
Dallas, Tex.	14.0	18.0	5.0	8.0
Fort Worth	14.0	18.0	5.0	8.0
Houston	14.5	19.0	5.0	8.0
San Antonio	13.5	17.5	5.0	8.0

Naphtha

STANDARD OIL CO. (INDIANA)

	Tank-wagon*
Oleum spirits	15.7
V.M.&P. naphtha	16.0
Cleaners' naphtha	15.0
Stanisol	15.0

*Prices include 3-cent Illinois tax, but not 1-cent federal tax or 2 per cent retail occupational tax.

Prices f.o.b. Chicago. Each price subject to discount of 1 cent per gallon for 150-gallon lots if covered by contract.

Canada*

3-Star Imperial Gasoline
IMPERIAL OIL, LTD.

	Tank-wag.	Inc. tax	Kero. tank-wag.
Halifax, N. S.	24.5	10.0	18.5
St. John, N. B.	24.5	10.0	18.5
Montreal, Que.	21.0	6.0	17.5
Toronto, Ont.	22.0	6.0	17.0
Hamilton, Ont.	22.0	6.0	17.0
Winnipeg, Man.	27.5	7.0	20.7
Brandon, Man.	28.1	7.0	22.3
Regina, Sask.	27.0	7.0	22.0
Saskatoon, Sask.	29.8	7.0	24.9
Edmonton, Alta.	26.5	7.0	21.5
Calgary, Alta.	24.0	7.0	19.0
Vancouver, B. C.	23.0	7.0	23.0

*Imperial gallon used in Canada.

Divided dealers pay tank-wagon price. Discount to undivided dealers, 1 cent below tank-wagon price. In maritime provinces both divided and undivided dealers pay tank-wagon price.

Retail Price Changes

Standard Oil Co. of New Jersey May 30 reduced tank-wagon kerosene .5 cent at all North Carolina points.

New York Market

(Continued from Page 103)

mains unchanged, although railroads are burning slightly more in conjunction with summer excursion operations. Wax prices are unchanged and movement is slow.

Unofficial estimates from a variety of sources indicate that motor fuel consumption in May exceeded that for the same month last year by 4 to 5 per cent. Most of the larger marketers are reporting a greater increase, ranging up to 15 per cent.

Deep Turner Valley Test

On the Okalta fold west of Turner Valley, Okalta Oil Co. No. 6, LSD 3, section 30-18-2w5, is below 8,050 feet. This is a new deep record for Turner Valley drilling. At this depth the test has not yet reached the Madison. The hole is now more than 500 feet below the greatest depth at which the lime was encountered in the crude oil area, some 2 miles farther east. The test is expected to throw light on the probable extent of the crude-producing area.

In section 31-18-2w5, Anglo-Canadian Oil Co. No. 1, LSD 16, north and east of Okalta No. 6, has derrick up.

Prices of Refined Products

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted

Prices as of June 7, 1938

The following quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents on lubricating oils.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:		
62 oct. and below	.04⅜	.04½
63-66 octane	.04⅝	.04¾
67-69 octane	.04⅞	.05
70-72 octane (regular)	.05¼	.05⅜
60-62 400 grades:		
62 oct. and below	.04⅜	.04½
63-66 octane	.04⅝	.04¾
67-69 octane	.04⅞	.05
70-72 octane (regular)	.05¼	.05⅜
64-66 375	.04¾	.05
68-70 360	.05	.05¼

NORTH TEXAS—

U. S. Motor grades:		
62 octane and below	.04⅜	.04½
63-66 octane	.04⅝	.04¾
67-69 octane	.04⅞	.05
70-72 octane (regular)	.05¼	.05⅜
60-62 400	.04⅜	.04½
64-66 375	.04¾	.05

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

U. S. Motor grades:		
62 octane and below		.04½
63-66 octane	.05	.05⅛
67-69 octane	.05⅛	.05¼
70-72 octane (regular)	.05⅜	.05¾

ARKANSAS (Ark., N. La., Miss. del.)—

U. S. Motor grades:		
62 octane and below	.04½	.04⅝
67-69 octane	.05⅛	.05¼
70-72 octane (regular)	.05⅜	.05¾

CHICAGO (Based on Group 3)—

U. S. Motor grades:		
62 octane and below	.04⅜	.04½
63-66 octane	.04⅝	.04¾
67-69 octane	.04⅞	.05
70-72 octane (regular)	.05⅛	.05⅜
60-62 400 grades:		
62 octane and below	.04⅜	.04½
63-66 octane	.04⅝	.04¾
67-69 octane	.04⅞	.05
70-72 octane (regular)	.05⅛	.05⅜
64-66 375	.04¾	.05
68-70 360	.05	.05¼

PENNSYLVANIA (inland refineries)—

58-60 U. S. Motor:		
Below 60 octane		.05¼
65 octane	.06½	.06⅝
68-70 octane	.07	.07¼

CALIFORNIA (domestic movement)—

54-58 U. S. Motor	.06⅜	.08¼
58-60 400, 65 oct. and higher	.08½	.09¼

EAST COAST (domestic)—

U. S. Motor, 60-64.9 octane:		
New York (Bayonne)	.06¼	.06½
Philadelphia	.06¼	.06½
Boston	.06½	.06¾
Baltimore	.06½	.06¾
Charleston, S. C.	.07	.07¼
U. S. Motor, 65 and above:		
*New York (Bayonne)	.06½	.07
Philadelphia	.06½	.07
Boston	.06¾	.07
Baltimore	.07	.07¼
Charleston, S. C.	.07¼	.07½

*All grades of gasoline one-eighth to one-fourth cent less for barge shipments. New York harbor prices are for New York and New England delivery. Prices for New Jersey delivery one-fourth cent lower.

GULF COAST (domestic)—

U. S. Motor grades:		
Below 60 octane	.05	.05¼
60-64.9	.05¼	.05⅝
65 octane and higher	.05½	.05¾

Naphtha

PENNSYLVANIA (inland refineries)—

52-56 450 (blending)	.04¾	.05

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70	.02	.02⅛
Grade 18-55	.02⅜	.02½

NORTH TEXAS—

Grade 26-70		.02
Grade 18-55	.02⅜	.02½

CALIFORNIA—

75-85 375-390	.06½	.07

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

Grade 26-70		.02⅜

Tractor Fuel

OKLAHOMA (Group 3)—

40-42 gr., 315-325 i.b.p., 110 flash, 540-550 e.p.	.04	.04⅛
41-43 gr., 300-520 i.b.p., 110-125 flash, 500-520 e.p.	.04⅛	.04¼
46-48 gr., 210-230 i.b.p., 480 max., e.p.	.04½	.04⅝

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

41-43	.04⅛	.04¼
42-44	.04¼	.04⅜

NORTH TEXAS—

41-43	.04⅛	.04¼

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

41-43	.04⅛	.04⅜

ARKANSAS (Ark., N. La., Miss. del.)—

41-43	.04⅜	.04⅝

PENNSYLVANIA (inland refineries)—

45		.05
46		.05⅛
47		.05¼

CHICAGO (Based on Group 3)—

41-43	.04⅛	.04⅜
42-44	.04⅜	.04⅝

CALIFORNIA (Pac. Coast market)—

38-43 high burning test	.05	.06

NEW YORK (Bayonne, N. J.)—

41-43		.05¾

***GULF COAST (domestic)—**

41-43	.04⅛	.04⅜

*Barge price one-eighth cent lower.

Furnace Oil

OKLAHOMA (Group 3)—

Range oil	.03⅞	.04
No. 1 prime white, 38-42	.03¾	.03⅞
No. 1 straw, 38-40	.03⅝	.03¾
No. 2 straw, 32-36	.03	.03⅛
No. 2 dark, 32-36	.02⅞	.03⅛
No. 3 zero to 15, 28-32	.02¾	.03
No. 3, 15 and above, 28-32	.02⅝	.02⅞

NORTH TEXAS—

No. 1 prime white, 38-42	.03¾	.03⅞
No. 1 straw, 38-40	.03⅝	.03¾

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

No. 2, 32-36	.03¼	.03½

ARKANSAS (Ark., N. La., Miss. del.)—

No. 2, 32-36	.03¼	.03½

CHICAGO (Based on Group 3)—

Range oil	.03⅞	.04⅛
No. 1 prime white, 38-40	.03¾	.04
No. 1 straw, 38-40	.03⅝	.03⅞
No. 2 straw, 32-36	.03⅝	.03⅝
No. 2 dark, 32-36	.03¼	.03⅜
No. 3, zero to 15, 28-32	.03¼	.03⅜
No. 3, 15 and above, 28-32	.02⅞	.03

NEW YORK (Bayonne, N. J.)—

*No. 1		.05¾
*No. 2		.04¾
*No. 4		.04¾

*Barge deliveries one-eighth to one-fourth cent under above tankcar price.

Gas Oil and Fuel Oil

(Gas oil per gal.; fuel oil per bbl.)

OKLAHOMA (Group 3)—

U.G.I. gas oil	.02⅝	.02¾
No. 4, low cold test, 24-28	1.00	1.10
No. 4, 15 and above, 24-28	.85	.90
No. 5, low cold test, 18-22	.70	.75
Below 18 fuel oil, industrial	.55	.60

NORTH TEXAS—

U.G.I. gas oil	.02⅝	.02¾
No. 4, low cold test, 24-28	1.00	1.10
No. 5, low cold test, 18-22	.70	.75
Below 18 fuel oil, industrial	.55	.60

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

10-14 fuel oil, industrial	.80	.85

CHICAGO (Based on Group 3)—

U.G.I. gas oil	.02⅝	.02⅞
No. 4, low cold test, 24-28	1.00	1.10
No. 4, 15 and above, 24-28	.85	.95
No. 5, low cold test, 18-22	.70	.77½
No. 5, 15 and above, 18-22	.60	.70
No. 6, low cold test, 10-16	.60	.70
No. 6, 15 and above, 10-16	.35	.45

PENNSYLVANIA (inland refineries)—

36-40	.03¼	.03¾

CALIFORNIA—

Los Angeles:		
30-40 gas oil, per bbl.	1.25	1.50
24 plus diesel, per bbl.	1.20	1.50
24 plus diesel (bunkers)	1.30	1.55
12-16 (bunkers at tidewater)	.85	.90
10-16 (cargo lots)	.80	.90
12-17 (tankcars)	.60	.90
10-17 high sulfur)	.55	.85
San Joaquin Valley:		
10-18 (tankcars)	.60	.80
24 plus diesel, per bbl.	1.30	1.50
San Francisco:		
24 plus diesel, per bbl.	1.45	1.55
24 plus diesel (bunkers)	1.50	1.55
10-16 (bunkers)		.95

GULF COAST—

No. 2 fuel		.03¼
43-47 diesel		.03½
48-52 diesel		.03½
53-57 diesel		.03⅝
Bunkers (bulk cargoes)	.72	.75
Bunker C (bunkers)		.80

NEW YORK (Bayonne, N. J.)—

27 plus, gas oil		.04¾
28-30 diesel (lighterage 6¼c per bbl.)		1.85
28-30 diesel (tankers)	.04¾	.05
Bunker C (to ocean-going ships in N. Y. harbor)		1.05
Industrial fuel (tankcars)	.04	.04¼

Lighterage charge 5c bbl. additional.

Bright and Steam Refined

OKLAHOMA (Group 3)—

190-200 D, 15-25		.19
150-160 D, 0-10	.14½	.16
150-160 D, 15-25	.13½	.15½
150-160 E, 15-25	.13	.15
100-110 D, 0-10		.14½
Steam refined:		
631 green (treated)		.13½
600 dark green (untreated)		.05

PENNSYLVANIA—

Bright Stocks (Pennsylvania Grade No. 8 color, 140-150 at 210, 545-550 flash):		
10 pour test	.15	.15½
15 pour test	.14	.14½
20 pour test	.13	.13½
25 pour test	.12	.12½
Steam refined:		
600	.08½	.09
650	.10½	.11½
600 Pennsylvania flash	.11	.13
630 flash	.14	.15
600 Warren E filtered	.13	.14

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

Zero to 10 Cold Test:		
150-3		.09
180-3		.10
180-4		.09½
200-3		.10½
200-4		.10
250-3		.11½
250-4		.11
280-3		.12½
280-4		.12
300-3½		.13
400-3½		.14
100-2½ paraffin oil		.06
15-20 Cold Test:		
200-3		.10
200-4		.09½
250-3		.11
250-4		.10½
280-3		.12
280-4		.11½

GULF COAST—

Pale Oils:		
200-3	.07	.07¼
300-3	.07½	.07¾
500-3½	.08½	.08¾
750-3½	.08⅝	.09¼
1,200-3½	.09½	.09¾
1,500-4	.09¾	.10
Red Oils:		
200-5-6	.07¼	.07½
300-5-6	.07¼	.07½
500-5-6	.08	.08½
750	.08¾	.09
1,200-5-6	.09¼	.09½

CALIFORNIA (moving to dom. market)—

Pale Oils:		
100-2½-3	.07¼	.08
200-2½-3	.07¼	.08
300-2½-3	.07¼	.08
400-3-4	.07¼	.08
450-3-4	.07¼	.08
550-3-4	.09	.11
600-3-4	.09	.11
Red Oils:		
200-4-5	.07¼	.08
300-5-6	.07¼	.08
350-5-6	.09¼	.11½
400-5-6	.09¼	.11½
450-5-6	.09¼	.11½
500-5-6	.09¼	.11½
600-5-6½	.09¼	.11½
700-6½ plus	.09¼	.11½
750-6½ plus	.09¼	.11½
900-6½ plus	.09¼	.11½

PENNSYLVANIA—

150 vis. at 70° color, 400-405 flash:		
Zero pour test	.14	.15½
10 pour test	.13	.13½
15 pour test	.12½	.13
25 pour test	.11½	.12
180 vis. at 70° F., 3 color:		
25 pour test	.13	.13½
200 vis. at 70° F., 3 color:		
Zero pour test	.15½	.16
10 pour test	.14½	.15
15 pour test	.14	.14½
25 pour test	.13	.13½

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (a.m.p.) w.c. scale	.02⅛	.02¼

PENNSYLVANIA (inland refineries)—

122-124 (a.m.p.) w.c. scale	.0190	.0200
124-126 (a.m.p.) w.c. scale	.0190	.0200

NEW YORK—

Wax in bags fully refined:		
122-125 (a.m.p.) wax		.0420
125-127 (a.m.p.) wax		.0435
128-130 (a.m.p.) wax		.0445
130-132 (a.m.p.) wax		.0455
133-135 (a.m.p.) wax		.0500
135-137 (a.m.p.) wax		.0515
124-126 (a.m.p.) w.s.		.0185
124-126 (a.m.p.) y.s.		.0185
Petrolatum in barrels, carload lots:		
Dark green	.02	.02⅛
Amber	.02⅜	.02½
Extra amber	.02⅝	.02¾
Lily white	.05½	.05¼
Snow white	.06½	.06¼
Cream	.04⅛	.04¼

Export Prices

GASOLINE

GULF COAST—

U. S. Motor	.04⅞	.05
60-62 400	.04⅞	.05
61-63 390	.05	.05⅛
64-66 375	.05	.05⅛

LOS ANGELES—

U. S. Motor grades:		
55-65 octane	.05¼	.05½
65-69 octane		.05¾
Above 69 octane		.06¼

KEROSENE

GULF COAST—

41-43 prime white	.04½	.04⅝
41-43 water white	.04¼	.04⅜

LOS ANGELES—

41-43 water white	.05	.05¼

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (f.o.s. in bbls.)—

Cylinder Stocks:		
600 Warren E	.14½	.15
600 S.R. unfiltered	.15½	.16
630 S.R. unfiltered	.17½	.18
600 flash, S.R.	.17½	.18
630 flash, S.R.	.21	.21½
Bright Stocks:		
8 color	.21½	.22
6½ plus color in dilution		.21

NEUTRAL OIL

200-3 color	.23½	.24
150-3 color	.21½	.22

PARAFFIN WAX

NEW YORK (prices per pound)—

123-126 a.m.p.		.0375
125-127 a.m.p.		.0387
128-130 a.m.p.		.0412
133-135 a.m.p.		.0437
135-137 a.m.p.		.0455
Crude Scale:		
124-126 w.s.	.0185	.0200
124-126 y.s.	.0185	.0200

Crude Oil Prices

Oklahoma, Kansas, North Central and East Central Texas

(Effective January 28, 1937)

East Texas (May 22, 1937)*	$1.35
Van, Tex.†	1.10
Camp Hill, Tex.	1.27
Cass County, Tex.‡	1.25
Talco	.73
Altus and Tipton, Okla.§	1.20
Other fields (see gravity table).	

*All companies. †Humble Oil & Refining Co.; Pure Oil Co. ‡Texas Co. §Gulf Oil Co. Talco by Humble Oil & Refining Co.

North Louisiana and Arkansas

Smackover, all grades	$ .90
Tullos and Urania	1.02
El Dorado East field	.90
Union County, Ark.	.90
Ouachita County, Ark.	.90
Lisbon, La. (Dec. 13, 1937)*	98

*Caddo Crude Oil Purchasing Co.

Gulf Coast

(Effective January 28, 1937)

Choctaw and Darrow, La.	See note below
Clay Creek, Tex.	$1.00
Garden Island, La.	1.37
Cleveland, Tex.	1.27
Hardin, Tex.	1.15
Lafitte, La.	1.24
Livingston, Tex.	1.27
Welsh, La.	.98
Tepetate (La.) (Jan. 28, 1937)	1.24

Duval, Jim Hogg, Webb and Zapata counties, Texas, and Heyser and Placedo fields take Mirando gravity prices. Jennings, La., 5 cents lower than Gulf Coast prices on each degree. Segno, Texas, takes Gulf Refining Co.'s Gulf Coast prices. Choctaw and Darrow, Louisiana, posted for first time by Standard Oil Co. of Louisiana, start below 21 degrees at 90 cents, with 3-cent differential up to 25 gravity, then 2-cent differential up to 40 and above, $1.36. Effective October 1, 1937, Stanolind Oil & Gas Co. in Evangeline, La., pays 92 cents for below 20 gravity, adding 2 cents for each degree upward to 40 and over, at $1.34.

Rocky Mountain States

(Effective January 28, 1937)

Iles, Colo., light*	$1.18
Iles, Colo., heavy*	1.12
Greybull, Wyo.*	1.30
Torchlight, Wyo.*	1.30
Grass Creek, Wyo., light*†	1.30
Grass Creek, Wyo., heavy (May 1, 1938)*	.50
Hamilton Dome, Wyo. (May 1, 1938)*	.45
Elk Basin, Wyo., light*†	1.30
Frannie, Wyo., heavy*	.62
Frannie, Wyo., light (May 1, 1938)*	.65
Hogback, N. M. (Jan. 28, 1937)*	1.33
Salt Creek, Dutton Creek and Midway, Wyo., take Stanolind's Oklahoma prices on a gravity basis.	
Big Muddy, Wyo.†‡	1.23
Rock Creek, Wyo.†	1.20½
Lea County, N. M. (see West Texas gravity table).	
Artesia, N. M. (Jan. 2, 1937)‡	.90
Maljamar, N. M. (Jan. 28,1937)‡	.90
Canon City and Florence, Colo.	1.10
Lance Creek, Wyo.*	.97
Lander, Wyo. (Jan. 1, 1938)§	.51¼
Sunburst, Mont. (Nov. 16, 1937)†	.90
Cat Creek, Mont. (Jan. 1, 1938)§	$1.30
Garland, Wyo. (Jan. 1, 1937)†	.50

*Stanolind Oil & Gas Co. †Ohio Oil Co. ‡Continental Oil Co. Texas Co. (April 1, 1938). §Hudson Oil Co.

Middle Western States

OHIO OIL CO.

(Effective January 28, 1937)

Lima	$1.00
Illinois	1.35
Princeton, Ind.	1.35
Midland, Mich. (Jan. 5, 1938)*	1.12
West Branch, Mich. (Dec. 29, 1937)†	.80
Buckeye (Jan. 8, 1938)	1.09½
Arenac, Mich. (Dec. 29, 1937)†	.80
Muskegon, Mich.	1.00
Eastern Kentucky:	
Big Sandy River	1.42
Kentucky River	1.50
Western Kentucky	1.40

*Posted by Pure Oil Co. †McClanahan P. L. and Simrall. Midland, Mich., price posted by Simrall Corp. and Pure Oil Co. Includes Greendale, Porter, Beaverton, Crystal and equal grades. West Branch and Arenac by Simrall Corp. Eastern Kentucky crude purchased by Ashland Refining Co., Ashland, Ky. Buckeye posted by Simrall Corp. and Pure Oil Co.

West Texas

See gravity table.

Pecos County*	$ .91
Pecos shallow†	.81

*Shell Petroleum Corp., Gulf Pipe Line Co. and Humble Oil & Refining Co. †Shell Petroleum Corp.

Southwest Texas

(Effective January 28, 1937)

Pettus	$1.37
Salt Flat, Darst Creek, Hilbig, Carroll, Clark, Zoboroski	1.09
Lytton Springs	1.12
Luling	1.00

Saxet and Taft take same gravity table as Gulf Coast.

Eastern States

TIDE WATER ASSOCIATED OIL CO.

(Effective March 7, 1938)

Bradford, Pa.	$2.05
Allegany, N. Y.	2.05

SOUTH PENN OIL CO.

(Effective March 7, 1938)

Pennsylvania Grade Oil in National Transit Lines (Bradford field)	2.05
Pennsylvania Grade Oil in Southwest Pennsylvania Lines	1.71
Pennsylvania Grade Oil in Eureka Pipe Line lines	1.65
Pennsylvania Grade Oil in Buckeye Pipe Line lines	1.55
Corning Grade Oil in Buckeye Pipe Line Co.'s lines	1.27

PENNZOIL CO.

(Effective March 7, 1938)

Pennsylvania Grade Oil in National Transit Lines:	
Group A	1.98
Includes, Cochran, Franklin, Hamilton and Doolittle districts.	
Group B	1.97
Includes Tidioute district.	
Group C	1.96
Includes Turkey and Tidioute districts.	
Group D	1.95
Includes Bear Creek and Porkey districts.	
Group E	1.88
Includes Eldeneau, Bull Creek, Rough Run, Carbon, Dipner, Bredlin, McJunkin, Jameson, Kenerdell, Emlenton, Tiona, Lacey and Kinzua districts.	

PURE OIL CO.

(Effective March 7, 1938)

Cabin Creek, W. Va.	$1.88
Bradford Hollow, W. Va.	1.88
Kelly Creek, W. Va.	1.88

Canada

Ontario (Sept. 9, 1933)*

Petrolia	$2.10
Oil Springs	2.17

TURNER VALLEY NAPHTHAS AND CRUDE OIL

(January 5, 1938, by Imperial Oil, Ltd.)

Clear naphtha and discolored naphtha, 65 gravity and higher	$2.14
Discolored naphtha and crude oil, 40-40.9 gravity	1.14
Increasing 2 cents for each degree gravity with top price for 64-64.9 gravity	1.62
These prices f.o.b. producers field tankage.	

*Imperial Oil, Ltd.

Crude Prices by Gravities

	1 Oklahoma-Kansas	2 Oklahoma-Kansas	3 North and Central Texas	4 East Central Texas (Mexia district)	5 North Louisiana-Arkansas	6 Gray County, Texas	7 Hutchinson-Carson counties, Texas	8 Rodessa, Louisiana-Texas and Panola County, Texas	9 Conroe, Tomball, Raccoon Bend, (Deep) Satsuma	10 Gulf Coast	11 Gulf Coast	12 Lea County, N. Mex. West Texas except Pecos County	13 Mirando district, Texas	14 Marion County, Texas	15 Refugio, Greta, Saxet, Taft, Texas	16 Anahuac, Flour Bluff, Dickson, Turtle Bay	17 White Castle, Louisiana	18 Iowa, Louisiana	19 Cayuga, Texas
Bel. 18	....	....	....	....	....	....	....	....	....	$ 95	....	....	....	....	....	....	....	$ .90	....
18-18.9	....	....	....	....	....	....	....	....	....	95	....	....	....	....	....	....	....	92	....
19-19.9	....	....	....	....	....	....	....	....	....	95	....	....	....	....	....	....	$ .94	.94	....
20-20.9	....	....	....	....	....	....	....	....	....	95	$ .95	....	$ .96	....	$1.01	....	.96	96	....
21-21.9	....	....	....	....	....	....	....	....	....	.98	.98	....	.98	....	1.03	....	.98	.98	....
22-22.9	....	....	....	....	....	....	....	....	....	1.01	1.01	....	1.00	....	1.05	....	1.01	1 01	....
23-23.9	....	....	....	....	....	....	....	....	....	1.04	1.04	....	1.02	....	1.07	....	1 04	1 04	....
24-24.9	....	....	....	....	....	....	....	....	....	1.07	1.07	....	1.04	....	1.09	....	1.07	1 07	....
Bel. 25	....	$ .98	....	....	$ .90	....	....	$ .93	....	....	....	....	....	$ .90	....	....	....	....	$ 88
25-25.9	....	1 00	....	....	.92	....	....	.95	....	1.10	1.10	$ .78	1.06	.92	1.11	....	1.10	1.10	.90
26-26.9	....	1 02	....	....	.94	....	....	.97	....	1.13	1.13	.80	1.08	.94	1.13	....	1.13	1.13	92
27-27.9	....	1 04	....	....	.96	....	....	.99	....	1.15	1.15	.82	1.10	.96	1.15	....	1.15	1.15	94
28-28.9	....	1.06	....	....	.98	....	....	1.01	....	1.17	1.17	.84	1.12	.98	1.17	....	1.17	1.17	.96
Bel. 29	$1 06	....	$ .96	$1.03	....	....	....	....	$1.20	....	....	....	....	....	....	....	....	....	....
29-29.9	1 08	1 08	.98	1.05	1.00	....	....	1.03	1.22	1.19	1.19	.86	1.14	1.00	1.19	....	1.19	1.19	.98
30-30.9	1.10	1.10	1.00	1.07	1.02	....	....	1.05	1.24	1.21	1.21	.88	1.16	1.02	1.21	$1.16	1.21	1.21	1.00
31-31.9	1.12	1.12	1.02	1.09	1.04	....	....	1.07	1.26	1.23	1.23	.90	1.18	1.04	1.23	1.18	1.23	1.23	1.02
32-32.9	1.14	1.14	1.04	1.11	1.06	....	....	1.09	1.28	1.25	1.25	.92	1.20	1.06	1.25	1.20	1.25	1.25	1.04
33-33.9	1.16	1.16	1.06	1.13	1.08	....	....	1.11	1.30	1.27	1.27	.94	1.22	1.08	1.27	1.22	1.27	1.27	1.06
34-34.9	1.18	1.18	1.08	1.15	1.10	....	....	1.13	1.32	1.29	1.29	.96	1.24	1.10	1.29	1.24	1.29	1.29	1.08
Bel. 35	....	....	....	....	....	$ .96	$ .91	....	....	....	....	....	....	....	....	....	....	....	....
35-35.9	1.20	1.20	1.10	1.17	1.12	.98	.93	1.15	1.34	....	1.31	.98	1.26	1.12	1.31	1.26	1.29	1.29	....
36-36.9	1.22	1.22	1.12	1.19	1.14	1.00	.95	1.17	1.36	....	1.33	1.00	1.28	1.14	1.33	1.28	1.29	1.29	....
37-37.9	1.24	1.24	1.14	1.21	1.16	1.02	.97	1.19	1.38	....	1.35	1.02	1.30	1.16	1.35	1.30	1.29	1.29	....
38-38.9	1.26	1.26	1.16	1.23	1.18	1.04	.99	1.21	1.40	....	1.37	1.04	1.32	1.18	1.37	1.32	1.29	1.29	....
39-39.9	1.28	1.28	1.18	1.25	1.20	1.06	1.01	1.23	1.42	....	1.39	1.06	1.34	1.20	1.39	1.34	1.29	1.29	....
40,over	1.30	1.30	1.20	1.27	1.22	1.08	1.03	1.25	1.44	....	1.41	1.08	1.36	1.22	1.41	1.36	1.29	1.29	....

Column 1—Companies posting are Barnsdall, Bell, Champlin, Continental, Cushing, Derby, Bay, Eason, El Dorado, Cities Service, Falcon, Globe, Gulf, Johnson, National, Phillips, White Eagle, Stanolind, Sunray, Texas, Sun, Vickers and Wilcox.
Column 2—Anderson & Prichard, Carter, Cosco, Deep Rock, Magnolia, Mid-Continent, Pure, Rock Island, Shell, Sinclair, Skelly and Tide Water.
Column 3—All purchasers.
Column 4—Humble Oil & Refining Co. and Sinclair Oil Purchasing Co.
Columns 5, 6, 7 and 8—All purchasers.
Column 9—Humble Oil & Refining Co. and Sun Oil Co. Tide Water Oil Co.'s schedule starts at 35 degrees, $1.34 with 2-cent spread up to 40 and over at $1.44. (Raccoon Bend prices are for deep sand oil.)
Column 10—The Texas Co. (Gulf Refining Co. pays same prices up to and including 34 gravity, but continues its 2-cent spread up to 40 and over at $1.41.)
Column 11—Humble Oil & Refining Co., Sinclair Prairie Oil Marketing Co., Sun Oil Co.
Column 12—All purchasers.
Column 13—All purchasers (effective July 6, 1937).
Column 14—Magnolia Petroleum Co.
Column 15—Humble Oil & Refining Co. (effective July 6, 1937).
Column 16—Humble Oil & Refining Co.
Columns 17 and 18—Shell Petroleum Corp.
Column 19—Tide Water Oil Co.

Texas Wildcats

(Continued from Page 98)

Chas. J. Kleiner No. 1 Mrs. A. E. Carlson, 333 ft. from S and E lines, NW¼ sec. 19-3, H.&T.C. Sur. Drlg. 1,200 ft.

F. W. Martin No. 1 B. N. Herndon, 330 ft. from S and W of NW sec. 1, M.E.&P. Sur. H.F.W. 3,240 ft.

F. W. Merrick et al No. 1 C. A. Cox, center Cox 119-ac. tr., J. H. Hughes Sur. No. 201. Sho. O.&W. 2,322-28 ft., Abnd. at 2,696 ft., T.D.

Oil States Exploration No. 1 J. E. Sellers, 100 ft. from S line, 330 ft. from W line, S. Andrews Sur. 191. Drlg. 1,700 ft.

L. H. Pearson No. 1 B. L. Hood, 1,100 ft. from S and W lines, W. T. Evans Sur. No. 1. Rigging.

Shaheen Oil Co. No. 1 T. B. McCoy, 595 ft. from N line, 660 ft. from E line, sec. 1-16, T.&P. Sur. Rig.

W. L. Snoddy & C. C. Dodson No. 1 C. L. Steffens et al, 220 ft. from S and W lines SW¼ NE¼ sec. 32-15, T.&P. Sur. U.R. 8-in. to 1,810 ft., T.D.

Ungren & Frazier No. 1 W. E. Fellows, 990 ft. from N line, 330 ft. from E line, S½ sec. 25-15, T.&P. Sur. Drlg. 1,875 ft.

Nolan County

Oyster, Harkrider et al No. 1 J. H. Withers, C SW¼ sec. 65-21, T.&P. Sur. Wildcat to drill 4,000 ft. Spd. to 200 ft.; R.U.R.

Shackelford County

Danciger No. 3 J. E. McCown, 300 ft. from N and E lines, S½ SE¼ sec. 158, B.B.B. &C. Sur. Top Palo Pinto 3,284 ft., oil; cem. 6-in. csg.; cored to 3,211 ft., T.D. Acid. 2,000 gals., flowing 50 B.O.P.H.

Joe DeGrazier No. 1 Harbough, E cen. part of county, sec. 1,563, T.E.&L. Sur. 4,500-ft. test; H.F.W. 2,185-95 ft.; drlg. 2,600 ft.

Forest Dev. & Helmerich & Payne No. 1 T. G. Hendrick, C sec. 1, A.B.&M. Sur. Drlg. 4,470 ft.

J. G. Hammond No. 1 Coker, 1,620 ft. from S line and 1,020 ft. from W line, sec. 159, B.B.B.&C. Sur. Drlg. 2,300 ft.

D. W. Power No. 1 Black Ranch, C SE 80 ac. of NE¼ sec. 391, T.E.&L. Sur., Ellenburger test.

Ungren & Frazier No. 1 J. S. McKeever, 306 ft. from W line, 354 ft. from N line, NW¼ SW¼ sec. 14-3, H.&T.C. Sur. 3,500-ft. test; gas at 1,475 and 1,492 ft.; set 10-in. 1,539 ft.; est. 100,000 ft. gas 1,745 ft.; set 10-in. to 1,907 ft.; top Palo Pinto 3,196 ft.; S.S. oil 3,215-18 ft.; oil 3,253-55 ft.; 1 bbl. hrly. 3.265-70 ft.; abnd. 3,273 ft., T.D.

Stephens County

Graham, Hafner, Lane & Inman No. 1 J. N. Yocum, 5 mi. SE of Franklin, 250 ft. from N and E lines of farm or approx. 2,525 ft. from E line and 1,400 ft. from S line of John R. Carter Sur. Trt. 1,000 gal. acid 3,575-90 ft.; est. 25-50 bbls. per day; drlg. 3,455 ft.

Lone Star No. 1 E. H. Brooks, 400 ft. from S and W lines, NE 200 ac. of sec. 54-7, T.&P. Sur. Rigging.

Lone Star No. 1 J. S. McKee, 660 ft. from N line, 660 ft. from W line, sec. 41-7, T.&P. Sur. Drlg. 2,200 ft.

G. Willard Rich No. 1 J. W. Andrews, 330 ft. W line, 450 ft. S line, NW¼ sec. 39-7, T.&P. Sur. Set 12½-in. at 1,620 ft.; drlg. 3,350 ft.

Stonewall County

Bert Fields No. 1 R. P. Pierson, C of E 80-ac., E. A. & S. M. Lee Sur., Abst. 817. Drlg. 820 ft.

General Crude Oil Co. No. 1 J. D. Smith, SW cor. county, 330 ft. from S and E lines of sec. 371, H.&T.C. Sur., Blk. 2. Set 13⅝-in. 2,119 ft.; set 10-in. 3,508 ft.; Cmt. 150 sacks; S.S.O. at 3,970 ft.; U.R. 8-in. 4,105 ft.

Percy Jones No. 1 fee, 330 ft. W line, 220 ft. from N line, sec. 2, Austin & Williams Sur. 348. Drlg.

Throckmorton County

ft.

Marland-Drake No. 1 Dickie Bros., center T.E.&L. Sur. 2226. Set 5-in. 3,925 ft.; S.S.O. 3,938-43 ft.; 5,000 gals. acid.; prep. to drill ahead.

New or Improved Equipment

N.G.E. Introduces Gas Burner for Use in Oil-Field Boilers

Natural Gas Equipment, Inc., Sterling Building, Houston, Tex., is introducing its Mid-Continent Type N.G.E.-Nelson gas burner for firing oil-field boilers. The burner consists essentially of a heavy sheet-steel box or frame in which are placed the gas-header, burner manifolds, burner and radiants. The gas-header is placed within and across the front end of the box, and three equally spaced pipe manifolds extend from the gas-header longitudinally across the box. Each of the pipe manifolds supports a row of burners. The burners in each row are individually spaced and the corresponding burners in the other rows are lined transversely.

A refractory is supported on each burner head within the primary air- and fuel-mixture outlet by means of lugs cast integrally with the burner. A course of brick around and against the firebox sheets is placed so as to shut off any air infiltration. Construction of the burner is such that it can be manifolded to suit every type and size of oil-field boiler, without alteration to the boiler. The burner is designed to operate over a pressure range up to 5 pounds per square inch and it will produce any capacity of which the boiler is capable of developing.

The entire installation is quickly and easily made. The arrangement of burner heads and refractories permits burning the gas in a restricted and localized zone, so designed that a condition of incandescence is maintained. The burner meets the demand for additional steam capacities required by the current use of heavier and higher-capacity burner equipment in drilling boilers. Convenience of installation is afforded by full portability, permitting ready removal of the burner and reinstallation when changing boiler locations.

Here and There With Men Who Manufacture Equipment

Oscar Beasley, former manager of the Hobbs, N. M., store of the Oil Well Supply Co., has been transferred to Shreveport, La., where he holds the same position.

Jack Prince, of the Bridgeport Machine Co., has been transferred from Oklahoma City to Shreveport, La.

William S. Richardson, merchandising manager of the B. F. Goodrich Co. mechanical goods division, has been named general sales manager of the same division, succeeding C. E. Cook, who died last April. L. H. Chenoweth, formerly assistant merchandising manager, succeeds Mr. Richardson.

J. B. Wittrup, for 23 years connected with the Manhattan Rubber Manufacturing division of Raybestos-Manhattan, Inc., has been appointed manager of the Chicago Mechanical Rubber branch.

W. R. Spiller has become affiliated with the Timken-Detroit Axle Co., Detroit, Mich., as a sales engineer. He formerly was chief engineer of the White Motor Co., Cleveland, Ohio.

T. J. Walne, of Neal & Massey Engineering Co., Ltd., with headquarters in Trinidad, British West Indies, was a recent visitor in the states.

Vapor Recovery Systems Growing

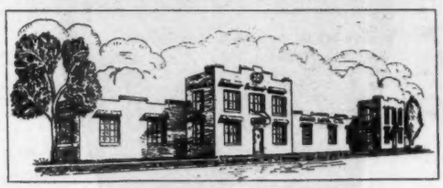
Increase in the demand for "Varec" tank equipment is being met by the Vapor Recovery Systems Co. of Compton, Calif., by an expansion program that includes the addition of 15,000 square feet of shop floor space and the tripling of present office space and facilities. The capital outlay for new buildings and machinery will total between $25,000 and $35,000. According to Frank V. Long, president, 168 complete vapor recovery systems have been installed in the Long Beach area in recent months. Orders are being booked from Canada, Rumania and Poland, and with the approach of winter in the Southern Hemisphere, complete systems are being installed in Peru, Bolivia and other South American countries.

IT ISN'T JUST A TRICK PICTURE

It's a real tire, the first of a series to be built by Goodyear Tire & Rubber Co., Akron, Ohio, for a manufacturer of large earth-moving vehicles. This 30-ply giant, when inflated at 75 pounds air pressure, has a load capacity of 25,000 pounds, outside diameter of 82 inches, rim diameter of 32 inches, measures 25 inches in cross section, and is about a foot higher than the average man. C. Slusser, vice president and factory manager of Goodyear, is standing beside it.

Baird Manufacturing Co. Now in New and Larger Quarters

The Baird Manufacturing Co. is now located in its new and larger quarters at 3105 Sand Springs Road, Tulsa. The company specializes in the manufacture of fluid seal check-valves for installation in underground oil-well pumps, presenting grades and types to meet all fluid lift problems. The products also include rig-iron, pumping-well and lease-tool equipment which features increased safety factors to reduce maintenance hazards.



Direct sales representation is maintained in the oil fields of Arkansas, Kansas, Oklahoma, Louisiana, and Texas with deliveries through the recognized oil well supply trade channels, and export sales through the New York office in the Graybar Building. The officers include L. D. Baird, president; A. R. Simons, treasurer, and Joseph A. Gill, Jr., secretary.

Joins Unit Rig & Equipment Co.

Harry F. Hinish has become associated with the Unit Rig & Equipment Co., Tulsa, as a sales representative. Mr. Hinish has been a resident of Tulsa for many years, and formerly was connected with the Shaffer Specialty Co. and the Wilson Manufacturing Co. He is regarded as an authority on drilling practice and has been contacting old acquaintances among the drilling contractors and production superintendents in the states of Oklahoma and Kansas.

American Shop Opened in Harvey

American Iron & Machine Works Co., Oklahoma City, Okla., has opened a machine shop at Harvey, La., equipped to handle heavy oil-field equipment. George S. Hinkle, former district manager for American in Houston, Tex., is supervisor. Al Backstrom is shop foreman.

Barber-Greene Appoints Agents

E. F. Lamprey, long with Barber-Greene Co., Aurora, Ill., and for the past few years sales manager of a machinery house in the Boston territory, has rejoined Barber-Greene. He will work in the Boston office, with headquarters at 84 Rogers Street, Cambridge. W. B. Holder is Eastern sales manager. The following distributors have been appointed recently to handle Barber-Greene accounts: A. R. Amos, Jr., Commercial Trust Building, Philadelphia, Pa.; Columbia Equipment Co., Portland, Ore.; W. T. Jones Co., Dooly Building, Salt Lake City, Utah; A. E. Hunt, 1115 Burnaby St., Vancouver, B. C., Canada; J. Shuman Hower, 85 North Genesee Street, Utica, N. Y.

Drilling Traveling-Block Now Is Part of Beaumont's Line

Beaumont Iron Works Co., Beaumont, Tex., announces the addition of a 60-inch drilling traveling-block to its line of Dreadnaught rotary equipment. Designated as Type PK, this new traveling-block is recommended for use on medium-depth wells. It is available with either three or four 30-inch diameter sheaves, 100 and 125 tons safe capacity on 4-to-1 factor of safety, respectively. The sheaves are wear-resisting nickel-chrome cast steel with high manganese content. Grooves are completely machined for 1- and 1⅛-inch wire line. Each sheave is carried by two Timken tapered roller bearings to prevent the sheaves working along the center pin, thereby preventing wear on the plates and pin. Bearings are lubricated through passages drilled in the center pin.

Lufkin in Wichita Falls

Harold Blodgett, formerly associated with the Gulf Oil Corp. in its West Texas production and drilling departments for four years, has opened an office of the Lufkin Foundry & Machine Co. in Wichita Falls, Tex., as district representative. After graduation from A. & M. College of Texas in mechanical engineering, Mr. Blodgett had extensive training in actual field operations which will enable him to give helpful service to operators in the Wichita Falls area.

Bulletins, Booklets and Other Literature for the Trade

The value of the recently developed stress-rupture test in determining high-temperature characteristics of steels is discussed in Bulletin No. 21, just issued by the Steel and Tube Division of the Timken Roller Bearing Co., Canton, Ohio. The bulletin is a reprint of a paper presented by A. E. White and C. L. Clark, of the University of Michigan, and W. G. Hildorf, chief metallurgist of the company.

A 22-page bulletin published by the Foxboro Co., Foxboro, Mass., describes standard practice in control-board design. Illustrations show typical layouts for instrument-boards.

A 12-page booklet, "How to Reduce Spalling With Super Duty Refractories" has just been published by the General Refractories Co., Philadelphia, Pa. It is in two colors and gives charts, tests, and general information on three types of refractories.

Two-stage air-cooled portable compressors are described and pictured in a 24-page booklet prepared for distribution by Ingersoll-Rand, 11 Broadway, New York.

Allis-Chalmers Manufacturing Co., Milwaukee, Wis., has come out with a 50-page illustrated bulletin on centrifugal pumps, including units for pipe line and refinery use.

A bulletin, "Brodie Meters for Pipe Line Service" analyzes preventable stock and time losses in pipe line operating systems and gives applications of meters for the control, routing, blending and diversion of crude or refined petroleum stock. Copies may be obtained from Ralph N. Brodie Co., 959 Sixty-first Street, Oakland, Calif.

The Fibre Conduit Co., 292 Madison Avenue, New York, is sending on request an illustrated bulletin on Orangeburg Alkacid 2, a nonmetallic gravity-pressure pipe for underground installation.

Reintjes wall and arch construction is the subject of a 16-page booklet sent on request by Geo. P. Reintjes Co., 2517 Jefferson Street, Kansas City, Mo.

Lane-Wells Co., Los Angeles, Calif., has prepared two new bulletins, one on the Lane-Wells knuckle-joint and one on the photo-record go-devil, an inclinometer instrument.

General Electric Putting Three New Electrodes on Market

Three new arc-welding electrodes, each protected by a heavy extruded coating, have been announced by General Electric Co.'s industrial department. These electrodes, designated as Type W-20E, Type W-22E, and Type W-23E, are intended for shielded arc welding of mild steel.

Type W-20E is designed especially for general purpose, single- or multiple-pass arc welding of mild steel in any position to produce shielded-arc quality in excess of that required to meet paragraph U-69 of the A.S.M.E. Boiler Code. It is particularly suitable for high-speed, single-pass welding and for jobs where fit-up is likely to be poor.

Type W-22E is designed for high-quality, single- or multiple-pass arc welding of steel in any position to produce shielded-arc quality in excess of that required to meet paragraphs U-68 and U-69 of the A.S.M.E. Boiler Code. Ductility is unusually good, and resistance to corrosion is better than that of mild steel.

Type W-23E is designed primarily for high-quality arc welding of mild steel in the flat position to produce shielded-arch quality in excess of that required to meet paragraphs U-68 and U-69 of the A.S.M.E. Boiler Code. Ductility is excellent and resistance to corrosion is better than that of mild steel.

Important Advantages Attach to High-Pressure Unibolt Tee

Thornhill-Craver Co., Inc., Houston, Tex., has placed on the market a 6,000-pound test pressure cast-steel tee which, because it embodies the Unibolt coupling principle, is said to offer several distinct advantages. According to the manufacturer, the Unibolt tee is particularly suited for use on high-pressure christmastree manifolds, as it obviates the need of the conventional threaded bull-plug. It is provided with a blanking plug which, as its name implies, serves the same purpose as a bull-plug, but with greater safety. The blanking plug may be removed and reinstalled indefinitely for the purpose of changing flow beans.

In addition to being safer under pressure, the tee provides quick connection, and because its parts interchange with those of the regular high-pressure steel Unibolt coupling, it is particularly advantageous in event it becomes necessary to kill the well.

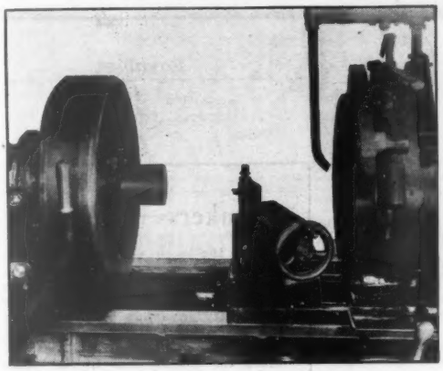
Tapered shelves, or holding members, are cast integral with the tee body. They are engaged by identical shelves in the nut member to effect a seal, the interlocking shelves being drawn together by a single bolt. The blanking plug and tee body are grooved to accommodate a metal seal ring as in the high-pressure steel Unibolt coupling. The blanking plug is available either tapped or solid, tapped blanking plugs being furnished with a threaded plug which may be removed to accommodate a pressure gauge if desired.

McKISSICK IN ITS NEW HOME

The McKissick Products Corp., manufacturer of patented oil-field equipment is now occupying its new plant on the Dawson Road, Tulsa. Increasing its floor space from 6,400 square feet to something over 16,000, the company is adequately housed. It specializes in equipment that emphasizes safety.

Smooth and Accurate Bevel on Pipe Is Made by Landis Tool

The Landis Machine Co., Waynesboro, Pa., has modified the construction of its line of pipe-threading and cutting-off machines equipped with



a beveling unit. The new beveling unit is placed on the carriage immediately in front of the threading-head. This change was made to insure a more accurately formed beveled surface suitable for high-pressure pipe installations using flange joints having gaskets which seal against the beveled ends of the pipe.

The beveling unit formerly was placed back of the threading-head, and the pipe overhung the chuck jaws while the beveling operation was being performed. This overhang can be materially reduced by the use of a pipe support, however, since the pipe may be somewhat out-of-round, the finished bevel is often unsuitable for application when it is utilized as a sealing surface. With the present arrangement, the pipe end overhangs the chuck jaws a relatively short distance. This arrangement is so rigid that an accurate, smoothly finished bevel can be formed.

The beveling assembly is pivoted on a base cast integral with the forward projection of the die-head carriage. This base has a graduated scale to show the inclination of the tool assembly with respect to the center line of the pipe. The tool-holder slide has a dovetailed slot to engage the corresponding dovetail of the base member. A gib is provided so that the clearance between the dovetail and its slot can always be maintained at any desired value. Thrust collars are provided on the feed-screw shaft to minimize wear between the shaft and the tool-holder slide. The tool-holder is thoroughly hardened so that the tool may be firmly clasped.

Drilling, Pumping Experiments Conducted by A. O. Smith

The A. O. Smith Corp. for two years has been carrying on unusual experiments with operating equipment for the oil fields, the two principal projects consisting of drilling oil wells and pumping oil to the surface of the ground. The principles of operation are entirely different from those of methods now used.

The first drilling experiments were carried on at the company's Milwaukee, Wis., plant, where two water wells, 15 inches in diameter and approximately 1,100 feet deep, were drilled. From these experiments, the equipment was developed to a point where the Smith engineers felt safe in attempting to drill in the oil field themselves. So a well was undertaken in the West Coyote field, about 20 miles east of Los Angeles, Calif., last March. Drilling operations were completed in approximately 30 days. This hole was 4,100 feet deep, 3,200 feet of which was 17½ inches in diameter and the remaining 900 feet was 12 inches in diameter. The well has been cased with Smith casing and is now ready for production.

Power is applied to the drill-bit at the bottom of the hole, whereas the present method of rotary applies the power at the top of the hole and transmits it through a long column of pipe to the bit itself. It is stated that the experiments carried on so far, while encouraging, have not proven all that must be known, and further experiments are being carried on in the oil fields. Until deeper holes are completed no production plans for the manufacture of the equipment used will be made.

Points of advantage claimed for this new type of equipment, aside from being well adapted to deep-hole drilling, include the fact that it is of comparatively light weight, drills a straight hole and when fully developed is expected to reduce drilling time. A. O. Smith executives and engineers are on the ground conducting the experiments.

The oil pumping equipment being developed also differs from the usual type of pumping machinery in that the entire mechanism is lowered to the bottom of the hole by means of a tube through which the oil is pumped. This mechanism is operated by an electric motor, and the electric current is transmitted to the motor by means of an electrical cable attached to the tubing. These pumps are sometimes placed 5,000 or 6,000 feet below the surface. They must operate continuously over long periods of time without interruption. A number of these pumping units are now operating in California oil wells.

The pumps are of tubular construction, 5¼ inches in diameter and approximately 26 feet long. The power for the electrical motor is transmitted to the crude oil pump hydraulically under heavy pressure. Experimental outfits are being made in the Milwaukee plant.

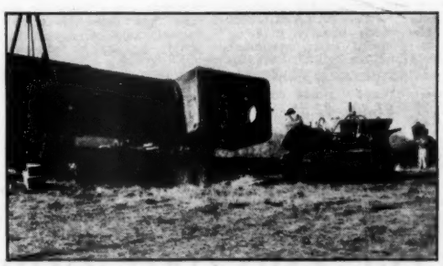
American Elevator Designed to Increase Speed and Safety

Greater speed and safety are claimed for the new drillpipe elevator offered by American Iron & Machine Works Co., Oklahoma City, Okla., and

Houston, Tex. An improved latch enables the operator to unfasten the gate by slightly moving the right or left handle, thus preventing injury of hands. The elevator can be used for either fourble-board or finger-board racking. It is made with a universal swivel-joint, which allows alignment of the elevator on the pipe to such an extent that badly worn tool-joints can be pulled without danger of breaking the jaws apart and causing an accident. The universal swivel-joint, as well as all other parts, can be repaired or replaced on the derrick floor.

OIL-FIELD BOILER ON ITS WAY

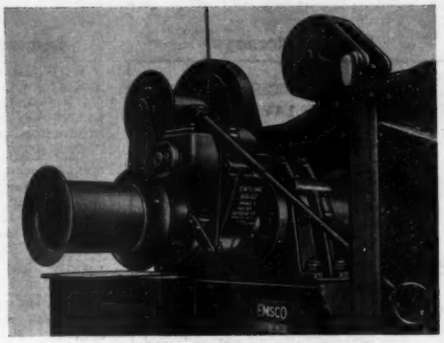
"Caterpillar" diesel RD-6 hauling a 52-ton boiler a half-mile to its new location in the Ramsey



field, Oklahoma. This machine, used also for slushpit work, is reported to be working 10 hours a day on three gallons of 7-cent fuel an hour.

Foster Catline Hoist Designed to Handle Loads With Safety

The Foster catline hoist, introduced by Foster Cathead Co., Wichita Falls, Tex., is designed to enable the drilling crew to handle heavy objects about the derrick floor with greater ease and



safety. This hoist is the outgrowth of more than two year's intensive development work in engineering and in field tests. The loads are handled with a wire cable securely attached to an auxiliary drum. The strength of the wire cable will remain comparatively constant over a period of years.

The loads are lifted 6 inches with each revolution of the lineshaft by a slight manual movement of the operating lever. The loads are constantly under control of the patented brake which automatically holds them at any point to which they are lifted. The loads can only be lowered by manually releasing the automatic brake. The loads are lifted and lowered by a single line, but owing to the fact that both the clutch and the brake are on a shaft that runs about five times as fast as the drum, the operation is performed with the same smoothness that would be possible if they were being handled with five lines. This is because both the clutch and the automatic brake are in a sealed housing and run in a bath of light oil. The catline hoist is recommended for loads up to 7,000 pounds.

No Bolts or Screws Are Needed in Fastening Vise to Bench

J. H. Williams & Co., 75 Spring Street, New York, has announced the Vulcan clamp kit vise No. 21. This new vise can be readily and firmly attached to bench, post, or other support without the use of bolts or screws. It is easily carried, weighs only 5¾ pounds and accommodates pipe from one-eight inch to 2 inches.

Unusual efficiency is claimed for the clamping device. The clamp member is integral with the base; the clamp screw, set at a slight forward angle, as seen in the illustration, carries a swivel with thin V lip projecting from its upper edge. Consequently, the vice can be attached securely and rigidly to bench, or other support. The drop-forged jaws are saw-tempered for file sharpening. Chains are of the same quality as those in Williams' Vulcan tongs. Jaws, chain, nut and handle are interchangeable with similar parts of Vulcan vise No. 1.

International Harvester Co., Chicago, has published a booklet on International oil-field power, covering power units for operation on natural gas, gasoline, distillate, or diesel fuels, and covering models of tractors.

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DRILLING deal wanted. 40,000 A in So. Ill. in and around production area. Illinois Minerals Co., Cairo, Illinois.

LEASES—ROYALTY. Few small tracts around the Dobbs Oil Co.'s Ordovician Wildcat Eastland County block. Low price. E. CROFT, Proctor. Texas.

HENDERSON COUNTY. Offset brought $200 an acre. Will sell 10 acres southwest new Texas well $100 an acre cash. North Bigbee, 3213 Drexel Drive, Dallas, Texas.

PRODUCING LEASE: Kevin, Montana Field, equipped, selling oil. Small cash and production payments. Mark Hunt, Oilmont, Montana.

AN opportunity to make money in spite of the depression. Close-in acreage to real producing wells, new field, block or single leases. Low drilling cost, and market for all oil or gas produced. Will sell or make drilling deals.
C. H. RESER
2311 E. Kellogg Wichita, Kansas.

FOR SALE: 100 acres lease with five wells, two pumping, in Eastern Kansas shallow field. A. B. Frederick, Lawrence, Kansas.

Leases and Drilling Blocks

I OWN 3,000 acres free in N. Pittsburg and Atoka Cos., Okla. 40 to 1000 A. tracts. No trades. Cash sale, lease or royalty, $5 to $25 per A. Townsite on 2 RRs. near production. J. E. Cavanagh, Baker, Ore.

BUY LAND—2½ acres, clear deed, for $50, $10 down, $5 month, in California's next prospective oil and gas field. Barth well drilling, down 2800 ft. Buy now. Bargain price. Kimbrough, 729 San Fernando Bldg., Los Angeles, California.

OUR lists will help you turn your oil or royalty deal. Oil Industry Mailing List Co., Tulsa Loan Bldg., Tulsa, Okla.

PROVEN offset lease in Oklahoma City field. Will sell $7,500 or consider drilling contract. R. Z. Glass, 1909 Commerce Street, Dallas, Texas.

LARGE drilling block north Texas approved by nationally known geologists, geophysical tests, and well logs to establish beyond doubt two shallow and two deeper oil sands in most favorable territory for quick pay-off. Invite correspondence from parties able finance or operators able handle. J. L. Dahl, Paris, Texas.

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ACCT. OFF. MGR., age 37, with large refiner for ten years. Desires position anywhere in any capacity. Knowledge refining, producing, tankcar wholesale and station marketing. References on request. Address Box J-430, The Oil and Gas Journal, Tulsa, Oklahoma.

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WILL sell my producing royalty under 11 wells. Average income $1000 per month. Am not a broker. My personal property R. Z. Glass, 1909 Commerce St., Dallas, Texas.

Non-Producing Royalties, Permian Basin area, West Texas—Southeastern, N. M. Write for free booklet with maps. Everett M. Byers, White Bldg., Roswell, N. Mex

PRODUCING OIL ROYALTIES
15 years of experience.
L. H. WITWER
214 Kennedy Bldg., Tulsa, Okla.

Royalties

ANDREW J. BARRETT
The Philtower
Tulsa, Oklahoma.

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Sell in the most active area in the United States—The Permian Basin of West Texas and Southeastern New Mexico. From the standpoint of royalty investors this area has much to offer. Can supply you with choice non-producing royalties located on geophysical highs. Also drilling blocks, close in acreage to production, or wildcat leases. I maintain my own field men who cover this area for me. All offerings meet the requirements of the Security and Exchange Commission. Inquiries invited.

B. D. BUCKLEY

Paul Brown Bldg., St. Louis, Mo.

Producing and Non-Producing
OIL ROYALTIES
Registered Dealers Only
GRIMES ROYALTY CO.
Hunt Bldg. Tulsa, Okla.

ROYALTIES—ADEQUATE RESERVES
G. D. TERRIEN
412 Central Bank Bldg., Tulsa, Okla.

THERE'S ONLY ONE

In the oil industry there is only one service, of any consequence, devoted to the small advertiser wherein without a great outlay of money, a message can be conveyed to the purchasing power of this great industry. Complete dominance of this field, by The Oil and Gas Journal, makes it possible.

Your printed message in these columns will be read by more interested parties than through any other available medium.

Put the Journal on your payroll—make it a part of your sales force. It will outsell anything you have tried before.

Classified Department

The Oil & Gas Journal
TULSA, OKLAHOMA

Oil Industry Printing

OIL FIELD LEGAL BLANKS
Leases, assignments, releases, township plat books, well records, etc. Request on your letterhead gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.

Equipment Wanted

WANTED—Rotary Drilling Rig Complete, Diesel or Gasoline. Shallow well capacity up to 3,000 feet. State make and condition and where located. Also skid winch swabbing machine for shallow wells. Price and condition. Address Box J-412, The Oil and Gas Journal, Tulsa, Oklahoma.

For Sale—Equipment

RECONDITIONED Southwestern 25 Portable Gasoline Plant with absorber, cooling tower, steel building, 7x30 pressure storage tanks, scrubbers, gas coolers, 40,000 gal. Stabilizer; 80 HP. Bessemer Type 10 Compressors, 20x16 Cyl.; Pumps; misc. plant equipment. Cash or terms.
R. B. Millard Engineering Co.
Phone 6-2450
439 S. Allegheny Ave., Tulsa, Okla.

CLASSIFIED DISPLAY RATES

Classified Display is set with a border and may be used in one or two column sizes.

1 Inch	*1 time*	*$5.00*
1 Inch	*13 times*	*4.50 per inch*
1 Inch	*26 times*	*4.00 per inch*
1 Inch	*52 times*	*3.50 per inch*

This space may be contracted for over a period of one year from the date of the first insertion and is PAYABLE IN ADVANCE, MONTHLY.

CLASSIFIED

Classified advertising rates: First insertion, 35 cents a line; each additional insertion, 25 cents a line, PAYABLE IN ADVANCE. Six words usually make a line. Count as a word each one-letter word and each group of figures. White-space computed at regular line rate. Allow two extra lines for blind ads. Ads of less than three lines not accepted. No formal acknowledgement is made, and proofs cannot be shown in advance of publication.

	1 time	2 times	3 times	4 times		1 time	2 times	3 times	4 times
3 Lines	*$1.05*	*$1.80*	*$2.55*	*$3.30*	*7 Lines*	*$2.45*	*$4.20*	*$5.95*	*$7.70*
4 Lines	*1.40*	*2.40*	*3.40*	*4.40*	*8 Lines*	*2.80*	*4.80*	*6.80*	*8.80*
5 Lines	*1.75*	*3.00*	*4.25*	*5.50*	*9 Lines*	*3.15*	*5.40*	*7.65*	*9.90*
6 Lines	*2.10*	*3.60*	*5.10*	*6.60*	*10 Lines*	*3.50*	*6.00*	*8.50*	*11.00*

We reserve the right to withhold all advertising of questionable character. To avoid delay be sure to send remittance with copy. We will set your ad in the smallest amount of space possible and refund all overpayments. One-time insertions will not be run until fully paid. Forms close MONDAY NOON before each issue date.

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

STORAGE TANKS—REFINERY EQUIPMENT

2—10,000 Bbl.—All steel-riveted tanks.
50—55,000 Bbl.—All steel, 5 Ring Storage Tanks.
128—80,000 Bbl.—All steel, Latest type Storage Tanks.
These tanks offered F.O.B. cars or reerected on grade furnished by customer.

SONKEN-GALAMBA SUPPLY COMPANY

W. C. Berry or H. J. Galamba
Riverview at Second,
Kansas City, Kan.

J. O. Isaacks
Hays, Kansas

Robt. W. Duden
2100 S. Union,
Tulsa, Okla.

USED ORIFICE METERS

We have for sale at our Independence Warehouse 100 Westcott Orifice Gauges of various types in guaranteed first class condition. Price to sell. Also, flanges, discs, extra 24 hour clocks and Bristol Recording Gauges of many types. Write or phone W. L. Orr, Purchasing Agent.

UNION GAS SYSTEM, Inc.
Independence, Kansas.

FOR SALE—At our Oklahoma City warehouse. 2—OCS chain driven sand reels. I. T. I. O., Bartlesville, Okla.

HAVE several six to ten thousand feet swabbing and tubing machines for sale. Address Box J-420, The Oil and Gas Journal, Tulsa, Oklahoma.

FOR SALE: At our Oklahoma City warehouse several Guiberson high pressure tubing oil savers, Type B, complete. I. T. I. O., Bartlesville, Oklahoma.

FOR SALE: Oklahoma City warehouse used 9⅝ OD 8 thread API D 40# seamless casing range 2. I. T. I. O., Bartlesville, Oklahoma.

FOR SALE
OIL FIELD EQUIPMENT
Drilling rigs, standard rigs, new and second hand casing, line pipe and machinery. Also have sixteen miles 8" P.E. standard line pipe suitable for high pressure line. Located near Kansas City, Mo. Wire, Write or Phone.
LOUISIANA IRON & SUPPLY COMPANY
Shreveport, Louisiana.

FOR SALE cheap at Bartlesville warehouse: 2—42 foot 4 leg 4 x 4 angle iron core drill derrick with crown block. I. T. I. O., Bartlesville, Okla.

FOR SALE: From Oklahoma City warehouse 10—Bovaird split slip-type tubing elevators for 2" and 2½" tubing. I.T.I.O., Bartlesville, Oklahoma.

25 K.W. and 40 K.W. Gas Engines, 220 volts, D.C. Two 100 K.W. Gas Engine-Generator Sets, 220 volts, D.C. 7x6 Ingersoll-Rand ER-1 Air compressor, Six-inch Oster Pipe Threading Machine. Also large stock of lathes, pipe machines, milling machines, etc. Send for our list.
Terms to suit.
CINCINNATI MACHINERY & SUPPLY CO.
26 West 2nd St. Cincinnati, Ohio

WELDER DEMONSTRATORS. Used and new. Electric or Gasoline engine drive. Thoroughly guaranteed. 30 Days' Trial. Terms if desired. Hobart Welder Exchange, Box OG-2, Troy, Ohio.

DRILLING RIGS, drill pipe, boilers and any kind of used rotary drilling equipment immediate delivery. Write, wire or phone M. ROSENBLOOM PIPE & SUPPLY CO., 3538 Mansfield Road, Shreveport, Louisiana.

9—165 HP Bessemer Gas Engines, 2 cycle 2 cylinder, 180 RPM. 9—16x8x16 Ingersoll-Rand 2 stage compressors, Model Imperial "XB" Belt Driven. Above priced to sell.
AMERICAN IRON & METAL CO.
801 Walnut St., Denver, Colo.

TRACTORS
Government crawler type Caterpillars 5 ton $375, 10 ton $695. Slightly used. Perfect condition.
O. C. EVANS
Mt. Sterling, Ky.

FOR SALE: At our Oklahoma City warehouse approximately 30,000 feet used ¾ and ⅞ by 30' sucker rods. $30.00 ton. I. T. I. O. Company, Bartlesville, Okla.

DRILLING DERRICK FOR SALE
122 foot Emsco galvanized drilling derrick, unreinforced capacity 437,000 pounds, for sale for $1250.00. Recently purchased for $1701.26. Has been used only for drilling two wells. Is located at Talco, Texas. D. L. Peavy, 2105 Tower Petroleum Bldg., Dallas, Texas.

NO. 2A Warner & Swasey Turret, top condition, with set boring and turning tools and motor. Located in central Texas. Address Box J-431, The Oil and Gas Journal, Tulsa, Oklahoma.

FOR SALE: 4 Cooper Low Compressor Cylinders, 11 inch Bore, 20 inch Stroke, Class B 20. Utilities Production Corporation, Tulsa, Oklahoma.

FOR SALE: Two rotary rigs and equipment. One two speed Lucy Draw Works and one two-speed Oil Well Draw Works, both with six inch line and drum shafts complete, with 10" x 10" Ideal Twin Drilling Engines; also Electric Welding Machine and miscellaneous oil field equipment, some new, balance good condition. All located near Houston.

Also 4121' new 7" OD 24# Seamless, Grade C Casing and 1096' 13" OD 50# Bethlehem High Tensile Lapweld casing, run once, located in Stephens County, Texas.

Also 4230' new 5½" 14# Electric Weld Casing and 3000' new 5½" 17# Electric Weld Casing located in Jones County, Tex.

All priced right for quick sale. M. S. Lipscomb, P. O. Box 670, Tel. 2-8104, Fort Worth, Texas.

STANDARD OIL CO. OF CALIFORNIA AND UNION OIL CO.
Crude oil prices at the well effective June 22, 1936

Gravity—	Signal Hill (Long Beach)	Seal Beach	Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda-Brea Canyon	Athens-Rosecrans	Dominguez	Elwood Terrace	Torrance	Richfield	Whittier E. Coyote (La Habra)	Montebello	W. Coyote Hills	Santa Fe Springs	Mountain View	Elk Hills Elk Hills Vista Hills Midway-Sunset Lakeview Area	Lost Hills	Coalinga	Wheeler Ridge	Kettleman Hills	Santa Paula*	Orcutt*
14-14.9	$.80	$.79	$.74	$.78	$.79	$.80	$.76	...	...	...	$.80	$.76	$.76	$.77	$.78	...	...	$.70	$.70	$.70	...	...	$.70	...
15-15.9	.80	.79	.74	.78	.79	.80	.76	...	...	...	.80	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.70	...
16-16.9	.80	.79	.74	.78	.79	.80	.76	...	...	...	.80	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.70	$.70
17-17.9	.80	.79	.74	.78	.81	.80	.76	...	...	...	.80	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.71	.70
18-18.9	.80	.79	.74	.78	.84	.80	.78	...	...	...	.82	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.73	.72
19-19.9	.82	.79	.74	.82	.87	.84	.81	...	...	...	.85	.76	.78	.77	.78	...	.$.70	.74	.74	.71	$.70	...	.75	.74
20-20.9	.85	.79	.74	.85	.90	.88	.84	...	...	...	.88	.78	.82	.77	.80	...	.70	.78	.78	.72	.70	...	.77	.77
21-21.9	.88	.79	.74	.89	.93	.93	.88	...	...	...	.91	.80	.85	.77	.84	$.78	.73	.82	.82	.74	.70	...	.79	.80
22-22.9	.92	.82	.74	.92	.96	.98	.92	...	...	...	.93	.84	.89	.79	.88	.78	.77	.87	.86	.78	.72	...	.82	.83
23-23.9	.95	.86	.77	.96	.99	1.02	.96	$.84	$.79	...	.96	.88	.93	.82	.92	.78	.80	.92	.90	.82	.76	...	.85	.86
24-24.9	.99	.91	.80	1.00	1.02	1.06	.99	.88	.81	...	.99	.91	.96	.85	.96	.82	.84	.97	.94	.86	.79	...	.87	.88
25-25.9	1.03	.95	.82	1.03	1.05	1.11	1.03	.93	.83	...	1.02	.95	...	.89	.99	.86	.88	1.01	.98	.90	.83	...	.90	.91
26-26.9	1.06	1.00	.85	1.07	1.09	1.16	1.06	.98	.86	...	1.05	.98	...	.92	1.03	.90	.91	1.06	1.02	...	...	...	.92	.93
27-27.9	1.10	1.05	.88	1.11	1.12	...	1.10	1.03	.88	...	...	1.02	...	.96	1.06	.95	.95	1.10	1.06	...	...	...	.95	...
28-28.9	1.14	1.10	.90	1.14	1.15	...	1.14	1.07	.90	...	...	1.06	...	.99	1.10	.99	.99	1.15	1.10	...	...	...	.97	...
29-29.9	1.17	1.15	.93	1.18	1.18	F.O.B.	1.17	1.12	.93	...	...	1.09	...	1.03	1.14	1.03	1.02	1.20	1.14	...	...	...	.99	...
30-30.9	1.21	1.19	.95	1.22	1.21	our	1.21	1.17	.95	F.O.B.	...	...	...	1.07	1.17	1.08	1.06	1.25	1.18	...	...	...	1.01	...
31-31.9	...	...	...	...	1.24	Pipe	1.24	1.22	.97	Ship	...	...	...	1.11	1.21	1.12	1.09	1.29	...	...	...	...	...	...
32-32.9	...	...	...	...	1.27	Line	1.27	1.27	1.00	...	...	...	...	1.14	1.25	1.16	1.13	1.34	...	...	...	...	...	...
33-33.9	...	...	...	...	...	...	...	1.32	...	$1.28	...	...	...	1.18	1.28	1.20	1.17	1.38	...	...	...	$1.19	...	...
34-34.9	...	...	...	...	...	...	...	1.37	...	1.32	...	...	...	1.22	1.32	1.25	1.20	...	...	...	...	1.23	...	...
35-35.9	...	...	...	...	...	...	...	1.42	...	1.35	...	...	...	1.25	...	1.29	...	...	...	...	...	1.27	...	...
36-36.9	...	...	...	...	...	...	...	1.46	...	1.39	...	...	...	1.29	...	1.33	...	...	...	...	...	1.31	...	...
37-37.9	...	...	...	...	...	...	...	1.51	...	1.43	...	...	...	1.32	...	1.37	...	...	...	...	...	1.35	...	...
38-38.9	...	...	...	...	...	...	...	1.56	...	...	...	...	...	1.36	...	1.42	...	...	...	...	...	1.39	...	...
39-39.9	...	...	...	...	...	...	...	1.61	...	...	...	...	...	1.40	...	...	...	...	...	...	...	1.43	...	...
40-40.9	...	...	...	...	...	...	...	1.66	...	...	...	...	...	1.43	...	...	...	...	...	...	...	...	...	...

Newhall, McKittrick, Kern River, Kern Front and Round Mountain, 70 cents for all grades. *Posted by Union Oil Co. Same company's Brea Canyon schedule stops at $1.14 for 28 degrees and over, and Belridge and Lost Hills schedule stops at $1.32 for 37 degrees and over. By Standard Oil Co., effective October 15: El Segundo, 14 to 18.9 degrees, 80 cents; 19-19.9, 82 cents; 20-20.9, 85 cents; 21-21.9, 88 cents; 22-22.9, 92 cents; 23-23.9, 95 cents; 24-24.9, 99 cents; 25-25.9, $1.03; 26-26.9, $1.06; 27-27.9, $1.10; 28-28.9, $1.14; 29-29.9, $1.17; 30-30.9, $1.21. Wilmington, 14 to 16.9, 75 cents; 17-17.9, 77 cents; 18-18.9, 79 cents; from 19 degrees upward, prices same as Signal Hill.

Oil Man's Calendar

June

9-10—Toronto, Canada, Canadian Gas Association annual meeting, Royal York Hotel.

16-18—Pittsburgh, Pa., Pennsylvania Grade Crude Oil Association.

20-24—St. Louis, Mo., American Society of Mechanical Engineers.

12-17—White Sulphur Springs, W. Va. Society of Automotive Engineers, summer meeting, The Greenbrier.

15-18—Dallas, Tex. American Society of Mechanical Engineers, National Oil and Gas Power Meeting

June-July

27-1—Atlantic City, N. J., annual meeting of American Society for Testing Materials.

July

27-28—Charleston, W. Va., West Virginia Oil and Natural Gas Association.

August

31-Sept. 3.—Spokane, Wash., Pacific Coast meeting American Institute of Electrical Engineers.

September

5-9—Milwaukee, Wis., American Chemical Society.

14-16—Atlantic City, N. J., National Petroleum Association, thirty-sixth annual meeting, Hotel Traymore.

14-16—Santa Barbara, Calif., annual meeting Pacific Coast Gas Association. Biltmore Hotel.

27-29—St. Louis, Mo., National Association of Petroleum Retailers, annual meeting.

27-Oct. 2—El Paso, Tex., midyear meeting American Association of Petroleum Geologists.

October

6-7—Tulsa, Society of Automotive Engineers, National Regional Fuels and Lubricants meeting.

6-8—Knoxville, Tenn., fall meeting of industrial minerals division of American Institute of Mining and Metallurgical Engineers.

10-14—Chicago, National Safety Congress, Stevens Hotel.

12-13—Indianapolis, Ind., Indiana Independent Petroleum Association, fall convention, Hotel Severin.

13-15—Los Angeles, Calif., Society of Automotive Engineers, Aircraft Production meeting, Ambassador Hotel.

19-21—Tulsa, Independent Petroleum Association of America.

27-29—San Antonio, annual meeting, Texas Mid-Continent Oil and Gas Association.

Index to Advertisers

A

Abercrombie, J. S., Co. 75
Abercrombie Pump Co. 93
Aero Exploration Co.
Air Reduction Sales Co. 1
Ajax Iron Works
Alco Products Division—American Locomotive Company
Allis, Louis, Company, The
Allis-Chalmers Mfg. Co.
Allsteel Products Mfg. Co., The
American Cable Division of American Chain & Cable Co., Inc. Inside Back Cover
American Cast Iron Pipe Company
American Iron & Machine Works
American Liquid Meter Co.
American Lubricator Company
American Meter Company 16
American Roller Bearing Company
American Sand-Banum Co., The
American Steel & Wire Company
Appleton-Atlas Car Mover Corporation
Arcos Corporation
Armstrong Machine Works
Athey Truss Wheel Co.
Atlas Drop Forge Co.
Atlas Imperial Diesel Engine Co.
Atlas Powder Company
Atlas Supply Co.
Auer, C. L. & W. W.
Axelson Manufacturing Company

B

Babcock & Wilcox Tube Co., The 69
Badger & Sons Co., E. B.
Bakelite Corporation
Baker Oil Tools, Inc.
Baldwin-Duckworth Chain Corp.
Bantam Bearings Corp.
Baroid Sales Company
Barret, William M., Inc.
Bastian-Blessing Co., The
Beaumont Iron Works Co.
Bethlehem Steel Co.
Bopp & Reuther
Boston Woven Hose & Rubber Co.
Bovaird Supply Company
Braden Steel Corporation
Bradford Motor Works, Inc.
Brewster Company, The
Bridgeport Machine Company 55
Broderick & Bascom Rope Co.
Brown Instrument Co., The
Buckeye Traction Ditcher Co., The
Buda Company, The
Butler Manufacturing Co.
Byron Jackson Co.

C

Cable, Jo H 75
Cameron Iron Works, Inc.
Carey Company, The Philip
Carnegie-Illinois Steel Corporation
Carson Machine & Supply Co.
Case Company, J. I.
Cast Iron Pipe Research Association, The
Caterpillar Tractor Co. 52
Cavins Company, The
Central Forging Co., The
Chain Belt Co., The
Chaplin-Fulton Mfg. Co., The 88
Chapman Valve Mfg. Co., The
Chemical Process Co., Inc., The 84
Chevrolet Motor Company
Chicago Bridge & Iron Company
Chiksan Oil Tool Co., Ltd.
Clark Brothers Company
Clark Machine Co.
Classified Advertising 110-111
Cleveland Trencher Company, The
Climax-Molybdenum Company 47
Columbia Steel Company
Columbian Steel Tank Co. 5
Continental National Bank of Fort Worth
Continental Oil Co.
Continental Supply Company, The 61
Cooper, Fred E.
Cooper-Bessemer Corp., The
Coppus Engineering Corp.
Core Laboratories, Inc.
Crane Co.
Cummins Engine Co.
Curtin, W. H., & Co., The 82

D

Darling Valve & Mfg. Co. 82
Davis Regulator Co.
Dayton Rubber Mfg. Co., The
Dearborn Chemical Company
De La Vergne Engine Co.
Demag
Diamond Chain & Manufacturing
Dickey Clay Mfg. Co., W. S.
Dixon Valve & Coupling Co.
Dodge Mfg. Corporation
Doheny Stone Drill Co.
Dowell, Incorporated
Dresser, S. R., Mfg. Co.
Du Pont de Nemours & Co., Inc. 60
Durametallic Corp.

E

Eagle Picher Lead Co. 86
Eastman Oil Well Survey Co.
Economy Electric Lantern Co.
Edward Valve & Mfg. Co., The
Emsco Asbestos Company
Emsco Derrick & Equipment Company
Ensign Carburetor Company, Ltd.
Ethyl Gasoline Corporation
Eureka Tool Co.

F

Failing, Geo. E., Supply Company
Fairbanks Company
First National Bank of Fort Worth
First National Bank in Houston
First National Bank & Trust Co. of Tulsa, The
Fisher Governor Company
Foote Bros. Gear and Machine Corporation
Ford Motor Co.
Fort Worth National Bank, The
Foster Wheeler Corp.
Four Wheel Drive Auto Co., The
Foxboro Co., The
Franks Mfg. Co.
Frick-Reid Supply Corporation
Frost National Bank
Fuchs-Letschert Sohn

G

Gardner-Denver Company
Garlock Packing Company, The
Gaso Pump & Burner Mfg. Co.
Gasoline Products Co., The
Gates Rubber Co., The
Gatke Corporation
General American Transportation Corporation—Terminal Division
General Electric Company
General Paint Corporation
General Power, Inc.
Geological Scientific Service Company 71
Geophysical Service, Inc.
Gilmer Company, L. H.
Girdler Corporation, The
Goodall Rubber Co.
Goodyear
Gott, H. P., Mfg. Co.
Goulds Pumps, Inc. 77
Grant Oil Tools Company
Graver Tank & Mfg. Co., Inc.
Gray Processes Corporation, The
Green Head Bit & Supply Co.
Guiberson Corporation
Gulf Oil Corp.
Gulf States Utilities Co.
Gustin-Bacon Mfg. Co.

H

Halliburton Oil Well Cementing Co.
Hanlon-Buchanan, Inc.
Happy Belting Company
Harnischfeger Corporation
Harrisburg Steel Corporation
Hazard Wire Rope Division of American Chain & Cable Co., Inc.
Heeter, C. M., Sons Co.
Hercules Tool Company
Hewitt Rubber Corp.
Hill- Hubbell & Co.
Hinderliter Tool Company
Hoard Exploration Company
Hough Mfg. Co., The Charles N.
Hughes Tool Co. Back Cover
Humble Oil & Refining Co.
Hunt Tool Company 75
Hyatt Bearings Division, General Motors Corporation
Hydril Co.

I

Independent Exploration Company 66
Ingersoll-Rand Co.
International Derrick & Equipment Co., The
International Harvester Co.
International Nickel Company, Inc., The
International Supply Co.

J

Jarecki Manufacturing Company
Jenkins Bros. 7
Jensen Brothers Manufacturing Co.
Jerguson Gage & Valve Co.
Johns-Manville Corporation 11
Johnston & Jennings Co. (Oceco Division)
Johnston, M. O., Oil Field Service
Jones & Brooks, Inc.
Jones Company, S. M.
Jones & Laughlin Steel Corporation

K

Kane Boiler Works, Inc.
Kellogg, M. W., Company, The
Kennedy Valve Mfg. Co., The
Kerotest Manufacturing Co.
Keuffel & Esser Co.
Key Company
Kibele Manufacturing Co.
Kinley Co., M. M.
Kinzbach Tool Co.
Kobe, Incorporated
Koppers Company
Kropp Forge Company
Krupp

L

Laminated Shim Co., Inc.
Landis Machine Co., The
Lane-Wells Co., The
Larkin Packer Company, Inc. 59
Layne and Bowler Co., The
Layne & Bowler, Inc.
Leeds & Northrup Company
Leland Equipment Co.
Le Roi Company
Leschen, A., Sons Rope Co.
Lincoln Electric Company, The
Linde Air Products Co., The
Link-Belt Company
Lockheed Aircraft Corporation
Lone Star Cement Corporation
Lovejoy Flexible Coupling Co.
Lucey Products Corporation
Ludlow Valve & Mfg. Co., The
Lufkin Foundry & Machine Co.
Lufkin Rule Co., The
Lummus Co., The
Lunkenheimer Co., The

Mc

McGregor Working Barrel Company
McKissick Products

M

MacClatchie Manufacturing Company
Macwhyte Co. 3
Magnolia Airco Gas Products Co. 1
Maloney Tank Mfg. Co. Front Cover
Manhattan Rubber Mfg. Division
Mannesmannrohren Werke
Marley Company, The
Marmon-Herrington Co., Inc.
Marsh, James P., Corp.
Martin-Decker Corp.
Mason-Neilan Regulator Company
Mathey Machine Works, C. A.
Mauser, K.-G.
Maxim Silencer Co., The 88
Medart Company
Meehanite Research Institute 62
Merco Nordstrom Valve Co.
Merla Tool Company
Metric Metal Works 16
Midco Tool & Supply Co.
Mid-Continent Supply Co.
Midwest Piping & Supply Company, Inc., The
Midwest Printing Co.
Miller Sand Pump Co. 95
Mission Mfg. Co., The 13
Morse Chain Company
Motor Improvements, Inc.
Murcell, Inc., U. C.
Murphy Diesel Company, Inc.
Muskogee Iron Works

N

National Airoil Burner Company
National Bank of Tulsa
National Supply Co., The 51
National Tank Company
National Transit Pump and Machine Co.
National Tube Co.
Natural Gas Equipment, Inc.
Naylor Pipe Company
New Deal Specialty Co., The
Newman, Hender & Co., Ltd.
Nichols Copper Company
Nervell-Wilder Supply Company
Novo Engine Co.

O

O'Bannon Co., Walter 86
O.C.S. Mfg. Co., The
Oceco Fittings
Oil Center Tool Co.
Oil Well Supply Company
Oklahoma Gas & Electric Company
Oliver United Filters, Inc.
Osage Metal Company
Oster Manufacturing Company
Otis Pressure Control, Inc.
Oxweld Acetylene Company

P

Page Fence Association
Page Steel & Wire Division of American Chain & Cable Co.
Parkersburg Rig & Reel Co., The 2
Parkhill-Wade
Patterson-Ballagh Corporation
Penberthy Injector Co.
Pennsylvania Grade Crude Oil Association
Perco, Inc.
Petroleum Advisers, Inc.
Petroleum Electric Power Club 18
Petroleum Engineering, Inc.
Petroleum Equipment Company
Petroleum Rectifying Company 4
Petty Geophysical Engineering Co.
Pittsburgh-Des Moines Steel Company
Pittsburgh Equitable Meter Co.
Pittsburgh Steel Company
Plymouth Cordage Co.
Polymerization Process Corporation, The
Pomona Pump Co. 87
Portable Rig Co.
Preformed Wire Rope
Prest-O-Lite Company, Inc., The
Price Co., H. C.
Pure Oil Co. 14

R

Reading-Pratt & Cady Division of American Chain & Cable Co., Inc.
Rector Well Equipment Co., Inc.
Reda Pump Co.
Reed Roller Bit Company
Regan Forge & Engineering Co. 75
Reilly Tar & Chemical Corporation
Republic Steel
Ryerson & Son, Inc., Joseph T.

S

Schlumberger Well Surveying Corporation
Sealed Power Corporation
Security Engineering Co.
Seismograph Service Corp.
Shafer Bearing Corporation
Shaffer Tool Works
Shand & Jurs Co.
Sharples Specialty Co., The 65
Shell
S K F Industries, Inc
Skinner Co., M. B. 15
Smith, A. O. Corporation
Smith Company, E. M. 81
Smith, H. C., Oil Tool Co. 87
Smith Company, Howard
Smith Meter Co.
Smooth-On Mfg. Co.
Socony-Vacuum Oil Co.
South Chester Tube Co.
Spang Chalfant, Inc.
Spang & Company
Sperry-Sun Well Surveying Co.
Stahmer, F. J., Shoe Company
Standard Brake Lining Co. 75
Star Drilling Machine Company
Stearns-Roger Manufacturing Co.
Steel Protection and Chemical Co.
Sterling Engine Company

T

Taylor Forge & Pipe Works 87
Taylor Instrument Companies
Technical Oil Tool Corporation
Texaco Development Corporation
Texas Iron Works
Texas Steel Co.
Texoma Supply Company
Thermoid
Thornhill-Craver Co., Inc.
Timken-Detroit Axle Co.
Timken Roller Bearing Company 6
Timken Roller Bearing Company—Steel and Tube Division
Tretolite Co.
Trinity Portland Cement Company
Tube Turns, Inc. 45
Tulsa Boiler & Machine Co.
Tulsa Chamber of Commerce
Twin Disc Clutch Co. 12

U

Union Carbide & Carbon Corporation
Union Carbide Sales Company
Union Wire Rope Corporation Inside Front Cover
Unit Rig and Equipment Company
United American Bosch Corp.
United Motors Service, Inc.
United States Rubber Company 8-9
United States Steel Corp. Subsidiaries
United States Steel Products Company
Universal Atlas Cement Co.
Universal Oil Products Co. 48

V

Vernon Tool Co., Ltd.
Visco Products Company
Vogt, Henry, Machine Co.
Vortox Mfg. Co.

W

Wailes Dove-Hermiston Corporation
Waldron Corp., John
Wall Rope Works, Inc.
Walworth Company
Warren Petroleum Corporation
Watson-Stillman Co., The
Waukesha Motor Co.
Wedge Protectors, Inc.
Westinghouse Electric & Mfg. Co.
Wheatley Bros.
Wheeling Machine Products Co. 65
Wheland Co., The
Whitney Chain & Mfg. Co., The
Wickwire Spencer Steel Company
Williams & Co., J. H.
Wilson Manufacturing Co.
W-K-M Company, Inc.
Worthington Pump & Machinery Corporation
Wyatt Metal & Boiler Works

Y

Young Engine Corp.
Youngstown Steel & Tube Co.

Z

Zink Burners, John